

The Indian Veterinary Journal

(The Journal of the All-India Veterinary Association)

A QUARTERLY JOURNAL

OF

Veterinary Medicine and Surgery, devoted
To the cause of the Veterinary Profession.

EDITED BY

P. SRINIVASA RAO, G.M.V.C., *Veterinary Surgeon, Madras.*

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NOTICE

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PUBLISHED FOR THE ALL-INDIA VETERINARY ASSOCIATION.

EDITOR :

P. SRINIVASA RAO, G.M.V.C.,

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26, Wallajah Road, Mount Road, Madras, S. India.*

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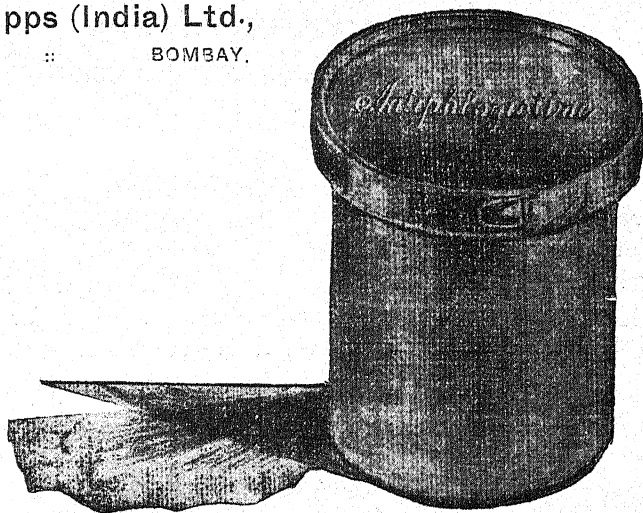
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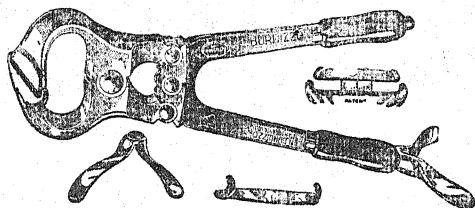
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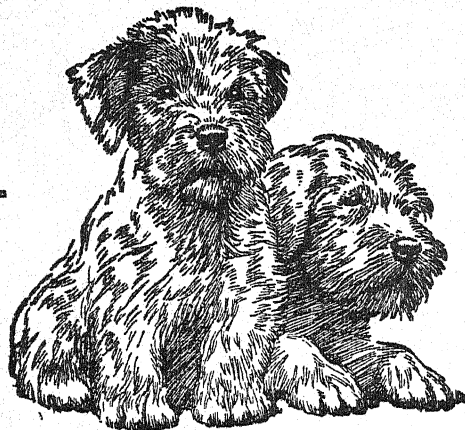
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JULY, 1936.

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Dr. B. K. BADAMI, G.B.V.C.,
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His Excellency, the Marquis of LINLITHGOW,
the Viceroy of India.

THE

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Editorials.

THE POOR MAN'S VICEROY.

Nothing in recent years has caught the imagination of the man in the street, so much as the noble and graceful act of the new Viceroy in presenting stud bulls to rural areas. Not all the propaganda of countless years by the paid agency of the Government could have brought about this awakening of the masses to the importance of this vital question. "Improve your cattle and drink more milk" is a slogan which the country is echoing to-day. That this should have been the very first public act of His Excellency the Viceroy clearly indicates correct appreciation of the elementary needs of this great agricultural country. To those who had closely followed the attitude and indications of Lord Linlithgow as Chairman of the last Royal Commission on Agriculture, this act of the Viceroy would not have come as a surprise. His heart was with the villager and his questions were directed to provide for the betterment of that rural inhabitant. When an opportunity presented itself he could not contain himself and his sympathy for the poor Indian ryot took the practical shape that the world is aware of to-day.

It is usual with the Viceroys to begin with the Princes and Politicians who are vociferous and even end their term with them. Here is a gentleman who has thought it fit to begin with the peasant leaving the clamorous to indulge in their pastime. 'Example is better than precept' is a proverb which is honoured more in its breach than in its observance. The full force of this proverb has been brought out in a manner that has attracted the attention of the world, by this memorable act of the Viceroy.

The time is so opportune now that we hope the heads of Civil Veterinary Departments in India will do their utmost to get their several Veterinary problems of rural areas solved at an early date.

The work of improvement of live-stock should be sought for and obtained. We feel much can be done by the Veterinary Department towards solving this problem.

Well, we cannot but record our admiration for the new Viceroy and tender our humble and loyal welcome to his great personage.

RECENT PROMOTIONS IN THE MADRAS CIVIL VETERINARY DEPARTMENT.

Times without number we have cried ourselves hoarse on the matter of unjust promotions in the Civil Veterinary Department, Madras, which seems to specialise in this art. Ours has really been a cry in the wilderness. They say days of jobbery were over long ago. But we doubt much. Man is supposed to be more refined, more reasonable and more just in this Twentieth Century. But is he? Echo answers "is he?" We are sick of exposing the several aberrations in this Department, but yet people concerned seem to be conscience proof.

Recently three men were promoted to the Gazetted rank from the Subordinate service, overlooking the claims of nearly 10 to 15 seniors! They say the majority of those seniors are in the eligibility list, but amongst the eligible men, merit is the chief criterion for promotion. It is the same old excuse for perpetrating many an injustice. If men are eligible it naturally follows they have the necessary merit for promotion. But to differentiate in degree this blessed virtue 'Merit' is merely indulging in the pastime of hair-splitting. Many a good man has been superceeded and the Civil Veterinary Department, Madras, sits to day downcast with grief.

The Director is said to have protested against these promotions anticipating all the present heart-burn and realising the injustice involved. But it is the Public Services Commission this time! Even the Head of a Department is treated with such scant courtesy in these days!

The ill-fated seniors have resorted to the usual methods of begging, praying, prostrating, appealing, memorialising, etc., etc. We have lost all faith in the sense of justice of Man. But the poor seniors are thinking that they have appealed from Phillip drunk to Phillip sober! We wish them good luck! Can any body deny that the morale of the service will certainly be affected by such acts of injustice? But who cares for 'Morale'!

As usual we have written this article with no bias against any body. We hope even the very promoted men will realise the grave injustice done to their seniors and will not misunderstand our criticism.

THE ROYAL ARMY VETERINARY CORPS.

Quite a lot of sensation was created recently in the newspapers over the alleged statement of the Military Authorities that their honest attempts to Indianise the R. A. V. C. are handicapped by the paucity of qualified candidates. What more is to be expected by a 'Service' that has till now been a close preserve for vested interests! Our wonder is that even three men should have applied for the four advertised posts in their very first year of attempt! And now let us examine the question.

1. The minimum qualification fixed is the diploma of the Royal College of Veterinary Surgeons and the cost of the course is computed at a modest estimate of £ 2,000/-.
2. 60 posts are to be spread over a period of 20 years, thus creating on an average 3 vacancies in a year.
3. The other venues suggested for such qualified men are 'Civil employment' and 'Private Practice'

Very few Indian parents can afford to send their sons for foreign education and those who decide to do so, naturally prefer the more paying professions of Medicine, Engineering, etc., or the Indian Civil Service. Some certainly would have taken to Veterinary Science also but for the lack of encouragement on the part of the Government, the sole employing and 'paying' agency in this country. With all the limited prospects held out, it is clear now from the rush of enquiries said to be pouring in that if only the necessary phillip had been given with proper advertisement, the response would not have been so meagre.

That is only one aspect of the question. Not all the moneyed people have the necessary physique and the natural 'bend' for the profession. Men with the necessary physique and natural aptitude cannot find the £ 2,000, so lightly advertised! Men who combine both are few with the result that this plea of paucity of candidates will be trotted out for many more years to come. Then what is the remedy? We shall come to it later.

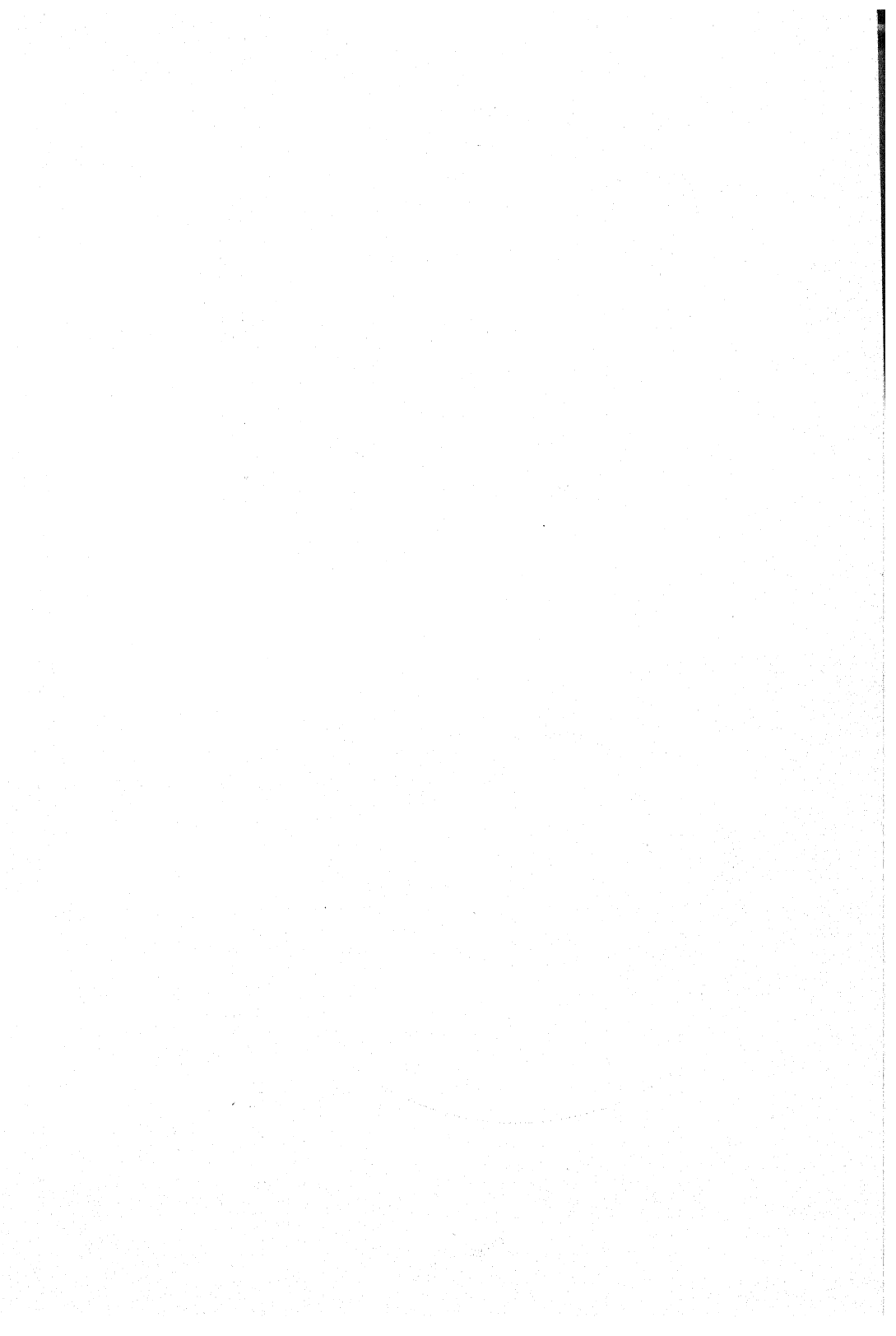
The process of proposed Indianisation is so slow that many would not risk their 26 to 30 thousand rupees on a precarious chance of securing a commissioned rank in the R. A. V. C. As regards Civil employment, those who are in the know of things cannot but laugh (or is it weep) in their sleeves. A pittance of Rs. 200 per month is offered, by a Government that means well by the profession! This is in return for 26 to 30 thousand rupees spent in a foreign land! The man has to earn his increment of Rs. 20, once in two years, and

thus plod on and finish his service on or about Rs. 600. Is this encouragement? The status of a profession is judged, at least in this country, on the emoluments offered. Both the subordinate service and the gazetted service of this profession are so miserably paid, that it is no wonder men are not coming forward freely to take to it.

The plea of private practice can be brushed aside without any consideration, knowing as we do in what depths of economic degradation rural India lives.

Under the above circumstances, we cannot agree with the Simla Correspondent of the 'Hindu', and we say "it does not seem a scandal that India cannot produce three young men per year to take their places in the Army Veterinary Corps". India can produce not 3 but 30 every year provided the prospects held out are in a fair measure proportionate to the time and money spent in a foreign land.

As for the remedies to the existing state of affairs, we can only say that the profession in India has cried itself hoarse over the many problems involved. The All-India Veterinary Association, the only true mouthpiece of the profession, has been demanding ever since its inception about 20 years ago for 'highest Veterinary Education' in this land itself. The Government were apathetic and the public were lethargic. Ours was merely a cry in the wilderness. We know what the M.R.C.V.S. course means in England. That very same standard has been reached in this land with the existing curriculum, but the powers-that-be fight shy of extending the period of study over five years, as it is in Great Britain, for obvious reasons. If that has not been done so far it is due to lack of sympathy. One Central College at least can be developed for the whole of India, so as to afford the same facilities as obtains in Great Britain and the scare of expenditure of £ 2,000 will be removed. Now that the eyes of the public have been opened, it is for them to see the scheme through. Unless the pay and prospects of the profession are made attractive in Civil employment, the response would continue to be poor. It is human nature to get the best out-turn for the money invested and the time spent. When there are other walks of life with better prospects, they will certainly be preferred. Until the ambition of having one Central College imparting highest Veterinary Education in India is realised, the Graduates from Indian Veterinary Colleges must be allowed to compete for the M.R.C.V.S. examination with such concessions as are necessary to meet the case.





BABU GURU PRASANNA SEN, G.B.V.C.,
Superintendent, C.V.D., Assam (Retired.)



Dr. S. G. DESAI, G.B.V.C., D.T.V.M. (Edin.),
Veterinary Surgeon I-c Veterinary
Dispensary, Vyara, Baroda.

It is strange that the recruitment to the R. A. V. C is for men possessing the M. R. C.V.S. diploma only; the Military Authorities would do well to throw it open also to men who hold diplomas of Veterinary Colleges in this country or other foreign countries. We learn there are many Indian students who are taking or have taken such courses and we feel sure they will in no way be inferior to others. This is again a matter which needs the immediate consideration of the Powers-that-be. Let us hope that this is not merely a camouflage but that something tangible will soon be done to meat out justice to all concerned.

RETIREMENT OF BABU GURU PRASANNA SEN, G.B.V.C.,

Officiating Superintendent, Civil Veterinary Department, Assam.

(Contributed.)

Babu Guru Prasanna Sen, Officiating Superintendent, Civil Veterinary Department, Assam, retired from service in July 1935, leaving a brilliant record behind.

He was born in 1880, in a very respectable Vaidya family in his native District Dacca. He passed the Entrance Examination of Calcutta University in 1899. He graduated from the Bengal Veterinary College, Calcutta, in the year 1904 and soon after, he was appointed as a Veterinary Assistant in Dumka in the District of Santhal Parganas. In 1906, he was taken on to the staff of the Bengal Veterinary College as an Overseer and in 1907, he was transferred to Dacca as a Veterinary Assistant in charge of Municipal Gowkhana and after reorganisation of the Civil Veterinary Department under the Government of Eastern Bengal and Assam he was appointed as Veterinary Inspector with head-quarters at Dacca in 1908. In 1911, he was transferred to Silchar in the District of Cachar in the same capacity. Before the transfer of Babu Guru Prasanna Sen to Silchar, the Surma Valley was under the control of the Planter's Association who engaged one M. R. C. V. S., for the supervision of the Veterinary work in the Valley. Later on, the planting community thought it prudent to transfer the responsibility to the hands of the Government of Eastern Bengal and Assam, and Babu Guru Prasanna Sen was selected to be put in charge for the smooth working of the Department. His services as a Veterinary Inspector were very much appreciated by the Government and the Planting community as well as by the public at large. In appreciation of his services he were allowed to officiate as the Superintendent, Civil Veterinary Department, Assam, vice Mr. W. Harris, M.R.C.V.S., I.V.S., on leave in 1922. This arrangement may be noted as the

first instance of its kind to allow an Officer of Subordinate service to act in the place of an Indian Veterinary Service Officer generally holding a degree not less than an M. R. C. V. S.

He was promoted to the post of Deputy Superintendent in the Assam Veterinary Service in 1921, but as the post was kept in abeyance as a measure of economy he had to revert to his substantive post and thus he was deprived of the benefit of the post mentioned above. It was gratifying to note that the benign Government of Assam did not miss an opportunity to heal the mortification of Babu Guru Prasanna Sen by allowing him to officiate as Superintendent, Civil Veterinary Department, Assam, on several occasions, *i.e.*, in 1922, 1923, 1927 and 1930 when Mr. W. Harris, M.R.C.V.S., had been on leave, in recognition of his past active services in the Department.

In 1932, Mr. W. Harris, M.R.C.V.S., was compelled to take long furlough due to heart trouble and he had to retire in 1933. In the absence and on retirement of Mr. W. Harris, Guru Prasanna Babu was placed in charge of the Department up till his retirement in July 1935. This period of his services was one of remarkable achievements under various directions. The Goat-Virus method of inoculation of cattle against Rinderpest was first introduced in Assam when he held the reins of the administration of the Civil Veterinary Department, and with a view to further expansion of work in this direction, he formulated a scheme of work which was put by him to the members of the Imperial Council of Agricultural Research and the scheme was very much appreciated and accepted by that body. During his regime one Veterinary Investigation Officer was appointed for the Province of Assam and research and investigation were being started as to new diseases and new modes of treatment. In 1933, Babu Guru Prasanna Sen detected "Johne's Disease" in Assam and investigation about it was given a start. For the efficient administration of the Department during his regime, the Government of Assam commended his name in the Annual Administration Report of the Civil Veterinary Department on every occasion.

It is further gratifying to note here that the Government of Assam is not slow in recognising the merits of the Subordinate Officers of the Civil Veterinary Department which fact is evidenced in transferring the responsibility of the Office of the Civil Veterinary Department to Rai Sahib Srish Chandra Ghosh, G.B.V.C., soon after the retirement of Babu Guru Prasanna Sen who, so to say, has paved the way of such recognition and thus we are very much thankful to the Government of Assam for recognising the merits of deserving Officers in the Department by giving him a lift,

Babu Guru Prasanna Sen is simple and he is a plain-living man. He was very sympathetic towards his Subordinates. He could fully realise the misery of unemployed life. During his tenure of Office he made earnest attempts to employ the unemployed youths of the profession which fact was evidenced by the appointment of all the unemployed youths soon after his retirement.

We wish him health and long life to enjoy his well-earned pension. His career is an inspiration to the younger generations who have adopted the Veterinary profession. P.C.D.

General Articles

RINDERPEST—ITS SYMPTOMS

BY

RAO SAHIB J. D'COSTA, G.B.V.C.,

*Retired Deputy Director, Imperial Veterinary Serum Institute,
Izatnagar. Loutulim, Goa.*

The symptoms of Rinderpest are those of a severe acute infective disease, in which the digestive tract is the chief seat of attack. The disease usually runs a definite course and the following stages are generally observed in most cases in India *viz.*, the febrile, vesicular, ulcerative and diarrhoea followed by either recovery or death. These stages of disease are best studied in artificial cases where animals are inoculated with virulent material procured from another diseased animal.

In natural outbreaks in India the disease is usually far advanced before it is detected. The symptoms that draw the serious attention of the owner to the presence of the disease are usually dullness among a large number of animals, reluctance to move about or graze, diarrhoea and occurrence of deaths among some of the sick animals. If one were to examine all the cattle of the herd, some would be found to be apparently healthy and feeding fairly well; others would be manifesting symptoms such as inappetence and high fever and the remaining suffering from the advanced stage of the disease *viz.*, fever, buccal lesions in the form of ulcers on the gums, lips and tongue and a fair number of animals having diarrhoea, and subnormal temperature and being in moribund condition.

The symptoms commonly observed in the cattle of India are the following; rise of temperature up to 105°F and 106°F., which remains at this height with but slight remissions until other symptoms develop

particularly diarrhoea when it declines. Shivering fits, dullness, arched back and other febrile symptoms are present. Breathing becomes accelerated, there is entire loss of appetite, suspension of rumination, decrease or arrest of secretion of milk; buccal lesions appear in the form of minute pin head size vesicles, which burst to form ulcers. These eruptions are noticeable on the gums, lips, dental pad and undersurface of the tongue usually and on nostrils and vagina rarely. In some cattle in the plains, eruptions occur on the abdomen, neck and shoulder simulating those of cow-pox but these have not been observed in the cattle of the Himalayan regions. When the disease is well advanced the diarrhoea is watery, foetid and of shooting nature. At this stage the animal sits down with the head turned towards the flank and may occasionally display restlessness and signs of colic by stretching out the hind leg or kicking. The discharges from the eyes and nostrils which appear soon after the febrile stage and are watery at first, now become viscid and muco-purulent. If death does not take place early, the diarrhoea may take a dysenteric form, the faeces being mixed with blood and mucus and passed with considerable straining. Death takes place from the sixth to the ninth day from the day of initial rise of temperature. The duration of the disease is about 14 days after which the animal gets into the convalescent stage and recovers.

In animals that recover, the ulcers commence healing and in time a bran-like deposit is noticed on the gums and lips; the diarrhoea decreases and the faeces begin to regain their normal condition. The animal looks brighter and shows inclination to take grain and grass. It has been noticed that in most outbreaks, the virulence is more marked at the commencement from the fact that there is quick dissemination of infection from animal to animal and later on the virulence decreases and isolated cases occur and very often end in recovery. This peculiar feature of the epidemic may be explained by the circumstance that at the commencement of an outbreak all the susceptible cattle are affected first and later on the less susceptible ones contract the disease in a mild form or escape according to their individual power of resistance.

The symptoms described so far apply to the Indian cattle but they do not vary much in the cattle of foreign countries except that in the animals of the Phillipine Islands, the vesicular eruptions on the buccal membrane are not usually present but instead there is appreciable congestion of the gums. The cattle of South Africa usually have eruptions on the nasal mucous membrane and seldom on the buccal membrane.

The disease has been described as it is observed in the field during outbreaks but to facilitate study of the different stages of the disease

and enable a Veterinarian to diagnose the same at its early stage, a detailed description of the symptoms as observed in artificially produced cases *i.e.* in animals infected by subcutaneous or any other method of inoculation of highly virulent material obtained from a diseased animal would seem necessary and the best type of susceptible animal in India, which reacts invariably in a regular manner is the hill bull of the Himalayan regions.

During the two days *i.e.* 48 hours from the date of inoculation of highly virulent blood, the temperature remains normal and the animal feeds well. On the third day the morning temperature often stands about the same level as that of the previous evening thus indicating to an experienced observer a tendency towards further rise. The evening temperature on that day will be much above normal, from 102° to 103°F. or at times even higher. Besides this thermal disturbance no other symptom is noticeable in the animal. On the 4th day, the morning temperature will be above normal and even slightly higher than the previous evening one. On this day the animal may manifest occasionally shivering and restlessness but does not give up its feed. The evening temperature will rise still higher than on the previous evening and may run up to 104° or 105°F. On the 5th day, in the morning the temperature may show a slight downward tendency. The animal at this time gives up the grain feed and takes grass less freely. If the mouth is examined on this day, the diagnostic symptom *i.e.* eruptions of the size of pin-head of grey colour will be observed in small numbers on the gums, lips or the under surface of the tongue. These greyish coloured vesicles when present in large numbers and grouped together resemble to a great extent the eruptions of measles in man. There is no shivering but the animal remains with arched back and the eyes are congested, there is slight watery discharge from eyes and nostrils. The faeces at this stage are hard, scanty and dark coloured. The temperature in the evening remains elevated about the same level as on the previous evening. On the sixth day the temperature is lower than on the previous morning; the lacrymal and nasal discharges continue the latter becoming muco-purulent and the former viscid and accumulating in lumps at the inner canthus of the eye. There is considerable salivation and slight frothing at the mouth and on examining the buccal membrane the vesicles seen the previous day will have burst to form ulcers and a fresh crop will be observed scattered particularly on the gums, lips and undersurface of the tongue, dental pad and on rare occasions even on the nasal mucous membrane. The ulcers are small sized but when many they coalesce and may present an appearance similar to those of Foot and Mouth disease but the ulcers will not be so deep and reddish in colour as those of the latter disease. The presence of a few such large sized

erosions with irregular zig-zag borders and greyish colour and a large number of tiny ulcers dispersed all around and the fact that the ulcers are usually found on the gums, lips, and undersurface of the tongue and not at the junction between the lips and gums on the dorsal surface of the tongue, will serve to distinguish the Rinderpest lesions from those of Foot and Mouth. The faeces will be soft and pasty and urine will be passed frequently. Occasionally on this day or on the following day a slight cough may be heard which is probably due to irritation in the larynx as a result of congestion. There are no symptoms to indicate the presence of any lung affection. On the 7th day, there is considerable fall in the temperature, the animal is very dull and off-feed, belly tucked up, back arched, there is accumulation of muco-purulent discharges in the eyes and the nasal discharges are seen to accumulate at the nostrils and dry to form scabs or crusts round the alae which also present fissures.

At this stage the mouth emits foul odour; the muffle is dry and cracked. On the lower lips just at the border few deep fissures and ulcerations may be observed and similar appearance may also be seen at the angle of the mouth. Diarrhoea is present at this stage, the evacuations being fairly frequent, watery and foetid and being discharged with force; the odour is peculiar and almost characteristic of Rinderpest disease in the hill cattle. The evening temperature declines still further and the animal shows considerable weakness and feels inclined to sit down. On the 8th day the temperature is subnormal, the mouth feels cold and clammy, emits foul odour and the buccal membrane is covered with ulcers and cheesy deposits. The diarrhoea is watery, frequent and later involuntary defaecations take place at short intervals and in small quantities from the open rectum of the animals which are now unable to remain in the standing position and lie on the ground usually with the head resting on the flank. Colicky symptoms are manifested by occasional stretching of the hind limb and kicking. The tail and all the parts surrounding the anus, perineum and the hocks are soiled by the frequent discharges of the watery faeces. The evening temperature may show a slight rise up to 99°F. On the 9th day, the temperature is subnormal, the thermometer often registering 95°F.; faeces are passed involuntarily and sometimes contain blood and mucus. The animal is very dull, eyes sunk and it will rest its head on the flank or on some part of the stall such as a bar or feeding trough being in semicomatose condition. The evening temperature will be subnormal and very often the mercury will indicate no rise and remain at the lowermost mark to which it was reduced. The animal usually dies during the night on the 9th day from the day of inoculation of the virus.

This is the course of the disease in the hill cattle that suffer from an acute attack. In the subacute type of the disease in the hill cattle infected artificially by the inoculation of virulent material, the symptoms described above are slightly less pronounced and death occurs later about the 12th day. Recoveries are frequent after such a reaction, which may be termed 'fairly severe' as compared with the reaction in the acute attack which is of severe type. Occasionally hill cattle possessing greater resistance, when inoculated with virus alone, display a reaction which may be called mild as there is only a slight rise of temperature with or without the buccal lesions and with or without a change in the consistency of the faeces. When animals which are quite immune to the disease are inoculated with virus alone, there is no evidence of disease at all as the animal manifests normal temperature and feeds well during the fourteen days—period of observation—and such a reaction will be called 'symptomless' or 'blocked-out.'

In the animals that recover from a fairly severe attack of Rinderpest, the temperature declines to normal about the 8th day, the diarrhoea is less violent and watery but the inappetence and dullness are present. The ulcers in the buccal membrane still appear fresh. On the 9th day the temperature is about normal, the animal looks brighter and shows inclination to pick up grass and take gruel if given. The diarrhoea may be slight in certain cases or the faeces may be sloppy in others. The animal attempts to stand up if very weak but remains seated. The ulcers show a tendency to heal and a certain amount of dryness is noticeable on the gums and lips. On the 10th day the animal is better and takes grass but will not relish grain if given. The faeces are soft and almost of normal consistency; the temperature will be normal, the ulcers are found to be healing and the buccal membrane may present a peculiar appearance as if there was a deposit of bran with a large number of cracks. From the 11th day onwards, the animal is convalescent and improves gradually until about the 15th or 16th day, when the animal will usually take grain and grass and look well but considerably reduced in condition. In some animals that have reacted fairly severely to the disease, complications may occur in the form of resuscitation of bowel parasites such as Coccidiosis 'or of such organisms as 'Piroplasmosis' or 'Trypanosomiasis' or 'Anaplasmosis' after the 9th day when the animal's vitality is considerably lowered by the Rinderpest disease. The clinical manifestations will depend on the presence of the particular disease which may have invaded the system. If Coccidiosis be present the faeces will continue to remain soft or pasty and may contain blood and mucus;

there will be considerable straining and at times there may be passage of reddish blood clots. On microscopical examination of a sample of faeces at this stage, there will be found to be a large number of coccidia present. The animal may recover or die and the result will depend upon the intensity of the infection. If the infection be severe the animal will succumb but if mild the animal may recover. The presence of Piroplasmosis is indicated by the sudden rise of temperature about the 9th to the 12th day from the date of inoculation. Examination of the blood smears will reveal the presence of Piroplasma in small or large numbers according to the severity of the infection. Other symptoms may be present such as passage of coffee coloured urine and on rare occasions passage of dark red blood stained faeces. Death may occur if the animal is susceptible and the infection be severe. In the case of Trypanosomiasis as a complication, the febrile rise may be the only symptom and examination of the blood smears will reveal the presence of the parasites. Very rarely an animal may manifest symptoms of brain affection in the form of slight delirium or comatose condition which may be followed by death if the correct treatment is not immediately administered.

The plains cattle of the Bareilly district as compared with the hill cattle usually do not react severely to the inoculation of the virulent blood and are not useful as virus producers. The few that were artificially infected both at Muktesar and Bareilly manifested practically the same symptoms as the hill cattle except that the initial rise of temperature frequently occurred about the fifth day from the date of inoculation and rarely about the fourth day, the shorter period of incubation being noticeable often in those that were infected in the hills. The temperature rises to its maximum about the 6th day. Vesicles appear usually on the 6th day and these are followed by ulcers and a day or two later by diarrhoea. The animal does not feed well on the 6th day and may be off feed later up to the 11th or 12th day when it will feel better and may even return to its normal state depending upon the severity of the attack. If the attack be of severe type the animal may die about the 11th day after manifesting all the symptoms as described in the hill cattle but if the reaction be fairly severe recoveries will be frequent and the convalescent stage will start after the 11th day.

The buffaloes of the hilly regions and also of the plains have often been utilised as virus producers but they are not to be preferred to the hill cattle for this purpose, as they fail to react at times and do not manifest all or most of the symptoms of Rinderpest so regularly as the hill bulls. Young buffaloes react better than the

older ones and particularly those that are in good condition. The symptoms are the same as those observed in the hill cattle with this difference that the initial rise of temperature occurs usually about the 4th day and rarely on the 3rd day, the buccal lesions in the form of vesicles and ulcers being less frequently present and the congestion of the conjunctival membrane being severe and invariably present. The discharges from nose and eyes are watery at first and later become muco-purulent, the discharges from the eyes accumulating in lumps at the inner canthus. The intestinal disturbance in the form of soft faeces and diarrhoea is more common and severe in these animals. During a severe attack an animal may present all the symptoms *viz* fever up to 105°F, about the 5th or 6th day, vesicles and ulcers about the 6th day, diarrhoea a day later and death takes place about the tenth or eleventh day. Recoveries are frequent after an attack of fairly severe or mild type. As in the case of hill bulls complications often occur in the form of Coccidiosis, Piroplasmosis, Trypanosomiasis and Anaplasmosis from the 10th to the 19th day in such cases that recover from a fairly severe type of the disease. A noticeable feature in many cases of recoveries is the rapid loss of weight and a lingering form of diarrhoea which may or may not be due to the presence of Coccidia. This intestinal derangement weakens the animal to such an extent that death usually results about the 18th to the 20th day from the date of virus inoculation. A secondary rise of temperature between the 16th and the 19th day is a common symptom and this may be due to either Piroplasma, Trypanosomes or Anaplasma.

The camels in India are fairly susceptible to Rinderpest and several outbreaks of Rinderpest have been reported among the camel corps during which a fairly good number of camels have died. The period of incubation is 4 to 7 days. The symptoms observed in these animals are high fever, with all the febrile symptoms, vesicles and ulcers on the gums lips and buccal membrane, trembling of muscles, grinding of teeth and diarrhoea of foetid character mixed with blood and mucus. The vesicles appear about the 7th day and the ulcers usually heal up quickly. Recoveries are frequent.

Elephants are not susceptible to Rinderpest as Lingard failed to infect one artificially by injecting subcutaneously 500 c. c. Virulent Blood from a hill bull. Evans of Burma also did not observe any case of Rinderpest among the large number of animals used but the elephant owners believe that they can contract the disease and take precautions to keep the elephants aloof when Rinderpest breaks out among cattle.

It is not definitely known whether hogs are susceptible both to natural and artificial infection. In India outbreaks do not appear to have occurred and it is very improbable that these animals have been utilised for experiment to test their susceptibility to artificial infection. But outside India workers have observed that hogs are susceptible to Rinderpest. Hutchin found hogs almost as susceptible as Zebu cattle and Vrijburg succeeded in transmitting the disease from artificially infected hogs to cattle and buffaloes. In the Phillipine Islands the cattle are known to have been simultaneously affected with the hogs and the latter have been the cause in infecting the cattle on the island of Romblon. Theiler however failed in every instance to transmit the disease to hogs. The course of the disease appears to be similar to that of cattle.

Goats are less susceptible than the cattle. The few outbreaks reported among the goats in the hills and other places are usually connected with the outbreaks of Rinderpest among cattle of the same village and the mortality has not been heavy. The symptoms observed during such spontaneous infections are fever, dullness inappetence, thick muco-purulent discharges from nose, coughing and diarrhoea. Buccal lesions in the form of vesicles and ulcers are not usually present. In the few experiments carried out by Shilston, kids were infected artificially with blood from affected hill bulls. The symptoms observed were fairly high fever about the 5th day, dullness, watery discharge from eyes and nose and frequent sneezing. The nasal discharge later changed into muco-purulent, accumulated at the nostrils and caused slight difficulty in breathing. Cough was present and in one case the respiration was difficult and suggested lung affection. There was no diarrhoea in any of the cases but in some semi-solid and even soft faeces were noticed. Buccal lesions were not present. Edwards in his intensive experiments was able to fix the virus in goats of the Bareilly and Kumaon districts so that the temperature rose constantly about the 3rd or 4th day from the date of inoculation and blood drawn at this stage invariably set up infection when inoculated into the hill bulls. In the very early stage of the experiment, the disease took a subacute course causing slight fever, slight difficult breathing, inappetence, diarrhoea in some cases and pasty faeces in others and even buccal lesions followed later by recovery. The symptoms of pneumonia were not marked but after frequent passages the disease took an acute course resulting in death of the animal about the 6th or the 7th day. The symptoms in the acute form were high fever 3rd day and 4th day, arched back, staring coat, discharge from nose and eyes, cough, shivering, extreme dullness, off feed and difficult breathing. On the 5th day the temperature dropped usually to subnormal and the animal became semi-comatose

and cried occasionally as if in pain. Death occurred about the 6th day and the percentage of mortality among the goats after such acute attacks was very high standing between 85 and 90. Although the disease took such acute and fatal course in the goats, the blood drawn at the height of the disease and inoculated into hill bulls was found to be less virulent than the blood taken from affected hill bulls. In order to prove if the goats suffering from the pneumonic form of Rinderpest were infectious two healthy goats were kept in close contact with such diseased ones and observations noted. The contact animals contracted the disease and blood taken at the febrile stage and inoculated into hill bulls produced the disease in the latter. The sheep of the Bareilly district and the part of Kumaon which adjoins the plains have been found to be less susceptible to Rinderpest than the goats, and very few outbreaks have been reported to have occurred among them both in the hills and the plains. In the spontaneous infection the symptoms manifested are rise of temperature to 106°F. or so, inappetence, dullness and drooping of head and fairly copious discharge from nose. The buccal lesions in the form of vesicles and ulcers are seldom found. In one outbreak only one sheep out of 20 examined showed a large number of ulcers both on the lower and upper lips. When the disease advances diarrhoea occurs and it may contain mucus and small blood clots. Recoveries are frequent and the mortality among the sheep of the above districts is about 40 per cent. The disease disappears from the locality soon after inoculation of Anti-Rinderpest Serum. In another outbreak a large number of animals had respiratory trouble. There was cough, muco-purulent discharge, sneezing and slight difficulty in breathing besides the fever and its symptoms. When artificially infected with blood from a diseased hill bull the reaction in most cases is mild and very few symptoms will be observed. The animal feeds well for a few days after which there will be a slight rise of temperature with slight inappetence and shivering and arching of the back. There is discharge from nose and occasional sneezing. Neither buccal lesions nor soft faeces nor diarrhoea were observed in the several animals that were infected. However blood taken about the 5th day from the date of inoculation when there was slight elevation of temperature proved infective when inoculated into a hill bull thus demonstrating that the sheep though not severely affected by Rinderpest yet may act as carrier of infection and be a source of dissemination of the disease among the more susceptible type of cattle of the same locality.

Rabbits are immune to Rinderpest and several workers failed to set up reaction in them by inoculation of virulent material from diseased cattle. But Edwards in his intensive experiments was able

after a long series of passages to fix the virus in them and blood drawn from such rabbits and inoculated into hill bulls invariably set up Rinderpest reaction. The rabbit virus was however not so virulent as the hill bull virus as majority of the hill bulls thus infected used to recover even after a fairly severe reaction. It appeared to be as virulent as the goat virus strain and might have been useful as the goat virus in the immunisation of less susceptible cattle. The maintenance of rabbit virus strain had to be abandoned owing to frequent incidence of Hæmorrhagic Septicæmia and Coccidiosis among the rabbits both healthy and infected. The symptoms of Rinderpest in rabbits were practically nil except elevation of temperature a few degrees above normal. Almost all the animals recovered.

NOTES ON BOVINE MASTITIS

From the Lecture of Dr. Ralph R. Dykstra, Dean of the Division of Veterinary Medicine, Kansas State College, Manhattan, U.S.A.

BY

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Bovine mastitis is found in two chief forms, acute and chronic. The chronic type is the form most frequently encountered, and it is usually due to the specific streptococcus infection. Synonyms: catarrhal mastitis, garget, caked udder, agalactosis.

The disease is usually of microbial origin, but the following are some of the predisposing factors of the disease:

1. Insanitary conditions of barns may either initiate mastitis, or may accelerate its spread.
2. Poor milking habits; irregular milking, rough milking, incomplete milking, machine milking, wet milking, moistening the teats with milk and allowing them to remain in that condition.
3. *Bedding*: insufficient bedding, thus exposing the udder to filth, moisture and cold.
4. *External injuries*: bruising or wounding of the teats or udder. Sometimes the cows step on their own pendulous udders in attempting to rise or while in recumbency.
5. *Exposure to cold*: washing the udder with cold water and not drying it, lying on cold cement floors.
6. *Infectious diseases*: variola.
7. *Age*: mastitis is more prevalent in older cows,

8. *Lactation period* : the beginning and the end of the lactation period places a heavy strain upon the udder and at these times a latent infection is most apt to become active.
9. High protein feeding.
10. Moist, warm atmosphere.
11. Retention of milk in the gland.
12. Infection may be gained from other cows.

Organisms of the *Streptococcus* variety are the most common causes of this infection. These are of three types :

1. *Streptococcus agalactiae* is the chief organism causing the condition.
2. *S. epidemicus* types seldom, but occasionally may cause it.
3. Hemolytic streptococcus as used in relation to mastitis is confusing. There is a Beta hemolytic streptococcus which only causes mastitis in cows, (*S. mastitidis*), and a Beta streptococcus which causes septic sore throat in man (*S. epidemicus*). If a cow has catarrhal mastitis, and it is of the hemolytic type, it is the infection caused by human carriers—thus a milker who is a carrier of the infection will cause infection in the cow, and the milk in turn will cause septic sore throat in humans.

Symptoms :—The symptoms of mastitis depend on the severity of the attack.

Acute :—The onset is always sudden. The local symptoms include a hot, painful, hard swelling of the udder and teats ; the milk flow ceases and may be replaced by a small amount of serous fluid, which may be of a yellowish or red color, and having a purulent appearance and a foetid odor. Usually it is mixed with a clot of casein. Manipulation of the affected parts causes pain. In rare instances death may occur due to a septic intoxication. The temperature is usually around 103°F, anorexia is present, the pulse is hard and frequent, respirations are short and rapid. The usual attitude is standing with the hind legs abducted from the body.

Chronic :—It may be detected in its initial stages, or it may not be, because local symptoms are not so manifest. Sometimes palpation of the udder reveals hardness, which may be painful but more frequently is not painful. This hardness may be in the form of a nodule, ring or pea at the base of the teat. Presence of flakes in the milk is indicative of the disease. General symptoms are usually absent. The milk may present a change in color and consistency, becoming watery and lighter or yellowish in color. Such milk may be free from flakes or clots.

DIAGNOSIS.

Physical examination of the udder.—After the milk has been withdrawn from the udder, examination should be made for symmetry of the udder, variations in size and position of the teats. The quarters should each be lifted separately and compared to the mate of the opposite side: if one quarter is noticed to be smaller than its mate, the smaller one usually is affected with the disease. If a quarter is found to be nodulated instead of smooth, it is due to fibrous tissue which has replaced the connective tissue.

Physical examination of the milk:—Strip-cup: A pint tin cup or a larger receptacle is fitted with a removable top about one and one-fourth inches deep. One half of the bottom of this section is made of fine wire mesh, one hundred meshes or squares to the square inch, and the other half is made of tin. The test is made just before the regular milking time, when the udder is filled with milk. The first few streams of milk from each quarter are drawn into the cup, using a clean cup for each quarter and the presence of clots or flakes on the wire mesh indicates the presence of mastitis.

Black cloth test:—The first few streams of milk from each quarter are drawn over a piece of black cloth which is stretched tightly over a container. This test is also to determine the presence of clots or flakes in the milk.

Chemical tests:—Brom-Thymol test (Thybromol): The thybromol solution is prepared with the following ingredients:

Brom-thymol blue powder	1 gram
Alcohol (47.5 per cent)	500 cc.

To adjust it to an alkaline range, add about 1.5 c.c. of a 5 per cent. sodium hydroxide solution. If this proves to be too much, the addition of a few drops of a 5 per cent. solution of hydrochloric acid or sulphuric acid brings it back to a neutral range. It is important that the indicator be only slightly alkaline or slightly acid. An acid thy-bromol solution is red, while an alkaline solution is green.

The milk for examination is drawn after discarding the first few streams. 5 c.c. of milk is drawn into a test tube. A separate sample is required from each udder. The milk is then examined for physical changes—color and consistency. The test is made by adding 0.5 to 1 c.c. of the indicator to the 5 c.c. sample of milk. Normal milk results in a slight yellowish green or greenish yellow color. The degree of reaction depends upon the degree of alkalinity above the normal of 6.2 to 6.5 pH. In chronic mastitis, milk from an affected quarter gives a light green color, the normal acid reaction being absent.

Catalase test :—This test is based on the presence of leucocytes in the milk. A large drop of milk is placed on a dark background, and a drop of a 6 to 9 per cent. solution of hydrogen peroxide is added to it. If mastitis is present, the mixture will produce bubbles of gas; this reaction is absent in normal milk.

Chlorine test :—The chlorine test is regarded by many workers as the most accurate indicator of the presence of infection. Normal milk contains 0.09 to 0.14 per cent. sodium chloride. This test reveals the presence of chlorine when the percentage is over 0.14. 5 c.c. of a silver nitrate solution, made by dissolving 1.3415 grams of silver nitrate (C.P.) in one litre of distilled water, is poured into a test tube. To this is added 2 drops of a 10 per cent. solution of potassium chromate. A red color will develop at once. An accurate 1 c.c. of milk should be added to this combination. A yellow color will develop in one minute if the chlorine in the milk is over 0.14 per cent. The yellow color develops very rapidly if the chlorine content of the milk is high. The red colour will be maintained if the chlorine content is under 0.14 per cent.

Lactose test :—1 cc. of a 25 per cent. solution of sodium or potassium hydroxide is added to 2 cc. of milk. If a normal amount of lactose is present, the milk will turn a deep red color. If lactose is low, the color will be faint. A low lactose content in milk indicates mastitis.

Rennet test :—A solution of rennet is prepared by mixing one part of fresh cheese-maker's rennet extract with 50 parts of distilled and preferably sterilized water. 10 c.c. of the first drawn milk from each quarter of every cow in the herd is needed for testing. Milk is drawn directly from the teats into test tubes that have previously been marked with a glass pencil to indicate the 10 c.c. point. To each 10 c.c. sample of milk there is added 0.2 c.c. of the diluted rennet extract. This makes a final dilution of 1—2500. The mixture is shaken and permitted to stand at room temperature for one hour. Milk from normal quarters will coagulate during this period. Samples which fail to coagulate within 60 minutes are abnormal, and the quarters from which they were drawn may be assumed to have some degree of mastitis.

Laboratory test :—Significance of leucocytes: A high leucocytic count is indicative of infection. The normal leucocyte count for 1 c.c. of milk is less than 150,000. Infected quarters may show the milk to have as many as 1,000,000 to 5,000,000 leucocytes per c.c. of milk.

Prognosis :—Agalactosis or Streptococcic mastitis usually has a favorable prognosis in the initial stages of the disease, but in the later stages, it is generally unfavorable.

Prevention :—Sanitary stable hygiene, sanitary handling of the udder, segregation of affected cows. In washing the udder, a sterilized towel should be used for each individual cow, and it should be washed in a solution of a chlorine disinfectant. In hand milking, it is desirable that the milker should thoroughly wash his hands after each cow is milked. After milking, the ends of the teats should be dipped in a disinfectant solution and dried. The ration should be balanced, and too much protein in the diet should be avoided.

Treatment :—The diet should immediately be changed from a high protein ration to a carbohydrate ration. Saline purgatives are then given—magnesium sulphate should be given with as small an amount of water as will dissolve the drug, so that the body will become dehydrated. After the magnesium sulphate has acted, a solution of one half ounce of sodium salicylate and two drams of boric acid in one quart of water should be administered every morning and evening. The affected quarter or quarters should be milked out every two or three hours—the milk should be collected into a vessel containing an antiseptic solution. This treatment should be continued for about 10 days. This method of treatment, if properly carried out, will reduce the mastitis losses without any great expense being incurred.

A new method of eradication of *Streptococcus agalactiae* mastitis in a herd—read by Dr. Steck before the 12th International Veterinary Congress :

Treatment is carried out at any time except in the latter part of the dry period when the gland is preparing for the new lactation period.

INSTRUMENTS :

1. A 2000 c.c. covered glass cylinder with easily legible graduations, and 200 centimetres of rubber tubing.
2. A funnel and sterilized filters.
3. A measuring jar for 1750 c.c. of water, and another for 500 c.c. of milk.
4. One small measuring cylinder.
5. Infusion needles, immersed in alcohol
6. Absorbent cotton and alcohol.
7. Sterile stock solution (1 per cent watery solution of trypan-flavine prepared the same day; 35 c.c. for each quarter).

The 2000 c.c. glass cylinder is placed in a metal frame and suspended by a rope and pulley.

To 1750 c.c. of clear boiled water (cooled to 40°C) and 12 c.c. of the stock solution in the 2000 c.c. glass cylinder. Protect the solution against direct sunlight. The cow is milked thoroughly from all four quarters. The teat of the quarter is carefully wiped with alcohol and cotton, and then 250 c.c. of the solution are infused. The quarter is milked out thoroughly. The infusion is continued until 400 c.c. of the solution remains in the cylinder. The infusion is then interrupted with a clamp on the rubber tubing, and 22 c.c. of the stock solution are added to the 400 c.c. in the cylinder. The infusion is then completed. Two minutes later the quarter is milked out as well as possible, but not more than a total of 500 c.c. should be withdrawn. The rest is left in the gland. Treatment takes 10 to 15 minutes for each quarter.

On the following evening the cow is milked and normal milking is continued for several days.

Ten days later the milk is culturally tested, and those that are not sterile yet are treated again. In general, it is advisable to eliminate cows which show a strong resistance to this treatment. The sterilization of highly resistant quarters has not yet been solved in a satisfactory manner. Professor Steck suggests an infusion of 1750 c.c. with 20 c.c. of the stock solution, and the addition of 50 c.c. of the stock solution, to the last 500 c.c. of the infusion fluid. Otherwise the same method of treatment is used as described previously.

Apparently healed quarters are tested again after three weeks, and the whole herd is given a semi-annual or annual test to prevent the reintroduction of the disease. Trouble may arise from latent infections of other types—*Mycobacterium tuberculosis*, etc. 78 per cent. of the animals treated in this manner recovered successfully when infected with the *Streptococcus agalactiae*.

VETERINARY DISEASES REFERRED TO PUBLIC HEALTH

By

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I should very much like to bring forward the subject-matter in a concise manner to impress that there should be a great co-operation between the medical and veterinary officers in working out problems regarding a nation's health, in as much as many veterinary diseases are infective or contagious and at times dangerous to the human health by one or more different ways or channels of communication, either direct, indirect or remote. As the theory of Evolution stands, most of the pathogenic bacteria appear to have evolved from the stage of being non pathogenic ones and so also at later times some of the pathogenic bacteria affecting man should have as well evolved from those of lower animals, possibly in some way of adaptation. Still there are at the present time most diseases of animals which are not ordinarily communicable to men, just as there are specific diseases relating only to a particular species or group of animals taking the animal kingdom as a whole all due to relative differences in the resistance afforded by the individual or species by the type of tissues, tissue-fluids aided by active body cells, ferments and other immune or antibodies arresting the particular specific pathogenic bacteria or infective organism in producing the disease.

Here I wish to introduce a brief survey of a number of such diseases affecting or likely to affect the human health from the veterinary stand-point.

First, is the tuberculosis of animals, caused by the *Mycobacterium tuberculosis*—of Bovine type in most animals, of Human type rare in pigs, parrots and pet dogs, of Avian type mostly in birds and often in localised forms in pigs and that though man is almost always susceptible to Human type only, can under rare conditions contract the infection of Bovine type and in remote cases, of Avian type too. Usually children contract the tuberculosis of Bovine type from drinking tuberculous milk from an infected cow and occasionally from infected beef or pork—which can be prevented by certified meat and milk-inspection including pasteurization of milk and possibly irradiation and control of tuberculin-tested cattle.

Next, Rabies or Hydrophobia, which is caused by a filterable virus is transmitted to man by bites of rabid animals, particularly dogs, the virus being neurotropic through bitten wounds by salivary infection and the human protection is usually gained by immediate cleansing and the cauterization of the infected wound with subse-

quent preventive vaccination and further by irradiation of Rabies in dogs by muzzling, detention and slaughter according to State Regulations.

Regarding the Pock-diseases, the Variola or Small-Pox in man is closely related to other viruses in lower animals, causing Vaccinia in Cow, Variola Equina, Variola Ovina, Caprina and Suilla (in horse sheep, goat and pig), and hence possibly transmissible to man in most cases though resulting in benign affections ordinarily. Small-Pox vaccination in man with Cow Pox virus is quite evident and well known in the medical field.

Bacillus anthracis is also transmissible readily to man from infected animals, hide, wool or hair, either by inoculation or at times by inhalation, causing the so called "Malignant Pustule" and "Wool-Sorters' disease", and the best prevention is obtained by proper disposal of carcasses, disinfection of hides, wool, hairs, etc., and also preventive vaccination in animals and early prophylactic serum, more especially in man lead to better results.

Tetanus, caused by the powerful exogenous toxin of the *Clostridium tetani* in animals can be carried to man also under favourable wound infection, and here the specific antitoxin is most valuable in prevention and less so in cure. It is well worth mentioning that Tetanus is caused always through wound infection; the spores which are so frequent in manure and certain soils gain entry into a wound and under favourable conditions, such as reduction in the oxygen tension, presence of damaged tissue or calcium salts, those develop and produce toxins which are directly carried by motor nerve trunks to the central nervous system, especially the spinal cord, when the disease is evidenced.

Clostridium septicum causing Malignant Oedema in horses and Braxy in sheep, is responsible sometimes for gas-gangrene in man by wound infection. *Clostridium oedematiens* and *Cl. welchii* are also pathogenic to animals (A strain of *Cl. welchii* causes Lamb-dysentery) and man—contributory to Gas-gangrene in man through wounds. Some formalized vaccines do good in animals in prevention and also anti-sera especially antitoxin against *Cl. welchii* is of value in animals and more so in man.

Pfeifferella mallei causing Glanders in Equines can acutely infect man and regarding treatment anti-sera is used for curative purposes in man; and in animals the disease in most countries is irradiated and controlled by mallein test and State Regulations under the Provisions of Diseases of Animals Act. *Pf. whitmori* too is slightly pathogenic to lower animals and definitely pathogenic to

man usually carried by rats causing the disease—"Meliodosis" in man.

Foot and Mouth Disease too sometimes affects man and especially children drinking the infected unboiled milk and that evidently pasteurization renders safe. The *Brucella Melitensis* causes Malta fever in man due to drinking fresh milk from infected goat—the disease known as Contagious Abortion in goats.

Actinomyces boydii is also rapidly infective to man, especially through raw infected meat or bone lesion.

Pasturella tularensis causing Tularemia in rodents is worth noting as human cases have been reported from many States, especially California. Next *Pasteurella pestis* causing the dreaded disease of Bubonic Plague in man is also of interest to the Veterinarian as it is principally the disease of rodents, particularly rat and the flea usually being the intermediate factors.

The Enzootic Jaundice in dogs caused by the Spirochete—*Leptospira ictero haemorrhagica* is also infective to man, causing the "Weil's disease", the infection principally arising from rat.

Salmonella enteridis causing gastrointestinal disturbances in lower animals—cattle and hogs in particular; *Salmonella suispestifer* associated with "Hog Cholera" and *S. aertryke* responsible for the disease in Guinea Pig have all been known as responsible or contributory for food infection or "Food poisoning" in man; *Sal. psittacosis* associated with a serious disease (Psittacosis) in parrots is apparently transmissible to man producing a severe kind of Pneumonia.

Botulism or a serious 'meat and canned food poisoning' in man and 'forage poisoning' in animals has drawn considerable attention in veterinary and human medicine, and that the antitoxin is of high value in most cases—the disease being caused by the most powerful exogenous toxins produced by the *Clostridium botulinum*.

Cases of Swine Erisipelas too have been recorded of infection by inoculation in human beings and that the sero-vaccine method as prevention in animals and anti-sera in human cases are of value.

The *Cysticercus cellulosus* in pigs and the *Cysticercus bovis* in cattle lead to the infestations of the adult tape worms—*Tenia Soleum* and *T. Saginata* in man through pork and beef unless cooked or otherwise treated. In man occasional *Echinococcus* cystic—infestation from infected dogs and *Trichinella Spiralis* from infested pigs and other tape and round worms of canine source as *Dipylidium Caninum* and Ascarid worms are all worth attention and that the prevention both in lower animals and man is well advised by knowledge of the life history of the parasites, hygiene and meat-inspection.

Again certain cases of skin parasitisms as certain types of Ringworm, Scabies, Itch, etc., are at times carried to man from pet animals and the prevention is quite evident.

On the whole I understand there are still a number of Veterinary diseases gaining or likely to gain adaptation in human tissue inhibiting or likely to inhibit the human health at present or at a later time requiring the combined attention of both the Veterinary and Medical profession.

LEUCOCYTOZOA AND MICROFILARIAE OF FOWLS AND HAEMOPROTEUS COLUMBAE OF PIGEONS IN PROVINCE WELLESLEY.

By

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INTRODUCTION

In Malaya as in other tropical countries, one finds many species of mosquitoes and it is due to this fact that diseases such as Malaria and Elephantiasis are more or less commonly found effecting human beings. Filariasis of dogs, cattle and fowls, and bird-malaria affecting pigeons, are also fairly frequently met with, and mosquitoes are usually incriminated in the transmission of these diseases as has been observed by the Veterinary Department, Penang and Province Wellesley.

In this paper, I propose to set down some observations concerning Leucocytozoa, Microfilariae in Fowls, and Hæmoproteus columbae affecting pigeons, which have been observed here.

LEUCOCYTOZOA AND MICROFILARIAE IN A WHITE LEGHORN HEN

A white leghorn hen belonging to an European on the island of Penang, was sent by the Government Veterinary Surgeon, Penang, to Mr. A. Joseph, Veterinary Inspector, Butterworth, for observation. This bird was "going light", was anaemic and its appetite was capricious.

As two cases of Avian Tuberculosis had previously been diagnosed in birds from the same flock, it was considered likely that this case might also prove to be one of Tuberculosis.

A few days later, blood smears from this hen were examined and the presence of spindle-shaped organisms, as well as *Microfilariae* were noted. The spindle-shaped organisms were identified as *Leucocytozoa* by the writer.

ATTEMPTS AT ARTIFICIAL INFECTION, SYMPTOMS AND MORTALITY

On 29th February 1936 at about 1 p.m., one c.c. of blood was drawn from the affected bird in a syringe containing a few drops of a 0.5 per cent sodium citrate solution. This citrated blood was immediately injected intravenously into a healthy fowl (Fowl No. 1), and this did not subsequently show infection.

On 3rd March 36, the original case (leghorn hen) exhibited nervous symptoms, probably owing to the absorption of toxins liberated by *Leucocytozoa* and *Microfilariae*. The symptoms noticed were that both legs had become paralysed, there was a profuse ropy saliva dribbling from the mouth, and the bird died the next day, exhibiting spasmodic movements of the head in addition to the paralysis of the legs. Immediately after death, the blood was drawn into a syringe which contained 0.5 per cent sodium citrate solution, and injected into Fowl No. 2.

A *post-mortem* examination was performed on the white leghorn hen, when the liver was seen to be hypertrophied, the spleen enlarged and black in colour, there was congestion of the lungs, and hæmorrhagic patches were noticed in the endo-cardium and myocardium. A blood clot occupied the right ventricle. There was extensive congestion of the intestines. Careful dissection of the bird failed to reveal any adult filaria.

On 4th March, blood smears of Fowl No. 2 exhibited a heavy infection of *Leucocytozoa* coupled with a mild infection of *Microfilariae*. The bird's temperature was 107.2°F. There was sulphur coloured diarrhoea, but the bird was feeding well, and was active, and exhibited no other signs of ill health. The heavy infection and the rapid appearance of the parasites in the blood, roused the suspicions of the writer and suggested that the experimental bird may have been infected previously, and so it was decided to test fowls offered for sale at the market, from which place Fowl No. 2 had been purchased. Unfortunately the blood of Fowl No. 2 was not examined previous to the inoculation.

On 5th March, the condition of the bird was the same except that the temperature was 108°F.

On sixth March, the temperature was 109·2°F. The bird had no diarrhoea, was feeding well and was active. Blood smears showed a double infection of *Leucocytozoa* and *Microfilariae*.

On 7th March, the temperature was 108·6°F. Other conditions remained as on the previous day.

On 8th March, the temperature was 108·2°F. The bird continued to feed well but diarrhoea started again.

On 9th March, the temperature was 107·4°F. There was profuse yellow coloured diarrhoea and blood smears revealed an increase of *Leucocytozoa* only. The bird continued to feed well.

On the morning of 11th March the bird was found dead. There was a ropy discharge from the mouth and nose. The mouth was half-opened and the eyes half-closed. The comb was cyanosed. At the autopsy the appearances were more or less the same as those seen in the original case, (the leghorn hen.)

At one place in the intestines there was a small ulceration but no diphtheritic deposits such as those sometimes seen in Fowl-pest. Smears which were taken from the lungs, liver and spleen, showed a distinct increase in the number of *Leucocytozoa* and *Microfilariae*.

The writer went to the local poultry market for a period of about a month and obtained blood smears from 237 fowls; it was found that the majority of those fowls, were heavily infected with *Leucocytozoa*, many had a double infection of *Leucocytozoa* and *Microfilariae* and in a few only *Microfilariae* could be detected (vide Table 1.)

Out of the 237 fowls examined, 95 were found to be affected with *Leucocytozoa* (40·08 per cent), 15 birds showed a double infection (*Leucocytozoa* and *Microfilariae*) (6·33 per cent) and two birds had *Microfilariae* alone (0·84 per cent).

On 16th March, the writer bought (Fowl No. 3), a locally bred cockerel weighing 3 lbs. 13½ ozs. Blood smears prepared from this bird showed a mixed infection. One or two *Microfilariae* were seen in each slide examined and at other times no *Microfilariae* could be seen.

Many of the affected cockerels and hens for sale at the market with well developed combs, revealed marks on the combs which were probably mosquito bites. In addition cyanosis of the combs of several birds was to be seen. Some birds had their beaks half-opened and their breathing was rapid and laboured, the eyes bloodshot,

The temperature and blood smears of this bird (Bird No. 3) were taken daily. The temperature varied between 106·2° and 108°F.

There was occasional greenish-yellow diarrhoea, and occasionally the bird was off-feed, otherwise the bird appeared normal.

On 23rd March, this bird weighed 4 lbs, and on 18th March weighed 3 lbs, 9½ ozs.

On 16th March, the writer bought a locally bred hen (Bird No. 4) from the market and the blood smears from this bird contained Leucocytozoa only. The temperature was taken daily and blood smears were also prepared and examined daily. When bought, the bird weighed 1 lb. 10⅔ ozs. On 23rd March, it weighed 1 lb. 12 ozs. and on 18th March weighed 2 lbs. 2⅔ ozs.

The temperature of this bird (Bird No. 4) varied between 106·2° and 108°F. it never had diarrhoea and its appetite also varied. In this case, the parasites remained more or less constant in numbers.

On 25th March, the writer bought a locally bred hen (Fowl No. 5) in the market and examined its blood and took its temperature each day up to 1st April. During these days the temperature varied from 106·2° to 107·4°F. and blood smears were free of micro-organisms.

On 1st April, this bird was fed on faecal matter from an infected fowl, (No. 3) and then Fowls Nos. 1, 3 and 5 were housed in the same pen. Fowls Nos. 1 and 5 did not contract the disease by this method.

On 18th April the writer bought a locally bred fowl heavily infected with Leucocytozoa and moderately with Microfilariae. He destroyed this bird and took pieces of lung, liver and spleen tissues, pounded them up in a pestle and mortar with 0·5 per cent sodium citrate in normal saline and injected 3 c. c. of the supernatant fluid intraperitoneally into fowls Nos. 1, 5 and also into one duck, while two pigeons received one c. c. each of the same fluid. The blood smears of Fowls Nos. 1 and 5, of the duck and also of the two pigeons were examined every day up to 18th May; neither Microfilariae nor Leucocytozoa appeared in any of the injected birds.

MORPHOLOGY OF LEUCOCYTOZOA AND MICROFILARIAE OF FOWLS AND HAEMOPROTEUS COLUMBAE IN PIGEONS.

Blood smears from affected fowls were stained by Leishman's, Panoptic, and Giemsa's methods and the appearances under the microscope were more or less constant. The attached drawings are self-explanatory. The Microfilariae in plate No. 1 were stained as follows so as to study the anatomy of the organisms:—

The slide was heated in an oven to 130°C. and allowed to cool. Next it was stained with Delafield haematoxylin for 15 minutes.

Then it was washed and tap water substitute was added for blueing. Next 0.5 per cent of Eosin in 75 per cent alcohol was poured over the slide and allowed to stain from 20 to 40 seconds, according to the amount of blueing seen on the slide. Next it was washed and differentiated in distilled water, then dried in an incubator for a few minutes and then examined microscopically. It appears that all Microfilariae do possess sheaths; some revealed long, well defined sheaths, some small and some do not show any sheath at all on one and the same slide. This phenomenon is probably due to the position of the parasites coupled with the spreading of the blood film on the slides and the method and effect of the stains.

Fresh wet blood smears under a cover glass when examined with a $\frac{1}{6}$ lens, reveals a well defined sheath; the movements of the Microfilariae can by this method, also be observed.

(Plates Nos. 2 and 3 are self-explanatory).

MORPHOLOGY OF LEUCOCYTOZOA.

The Macro and Microgametocytes develop in the red blood corpuscles of the fowl. The predominant matured macro and microgametocytes are spindle-shaped organisms.

The immature growing gametocytes are mainly spherical and at times ovate. The protoplasm of the macrogametes is dark blue in colour and contains numerous pigmented bodies. The nucleus of the macrogametes is more compact than the microgametes. The microgametes have their protoplasm pale blue and the nucleus is large and contains within its membrane numerous chromatin granules.

Dimensions of 8 Leucocytozoa were as follows:—These dimensions are in Microns:—

(1) <i>Macrogametocyte</i> .	
Length of parasite	... 16
Breadth of parasite	... 8
Length of nucleus	... 8
Breadth of nucleus	... 4.8
(2) <i>Macrogametocyte</i> .	
Length of parasite	... 32
Breadth of parasite	... 5.6
Length of nucleus	... 8
Breadth of nucleus	... 2.4
Length of flagellum	... 17.6
(3) <i>Microgametocyte</i> .	
Length of parasite	... 40
Breadth of parasite	... 3.2

Length of nucleus	...	11.2
Breadth of nucleus	...	1.6
(4) <i>Immature Growing Macrogametocyte (Spherical shape).</i>		
Diameter of parasite	...	6.4
Diameter of protoplasm	...	1.6
Diameter of nucleus	...	3
(5) <i>Macrogametocyte.</i>		
Length of parasite	...	62.4
Breadth of parasite	...	8.6
Length of nucleus	...	8
Breadth of nucleus	...	3.2
Length of protoplasm	...	17.6
Length of right flagellum from one extremity of the protoplasm	...	22.4
Length of left flagellum from one extremity of the protoplasm	...	20.8
(6) <i>Macrogametocyte.</i>		
Length of parasite	...	32
Length of protoplasm	...	16
Length of nucleus	...	8
Breadth of nucleus	...	3.2
(7) <i>Microgametocyte.</i>		
Length of parasite	...	28.8
Breadth of parasite	...	2.5
Length of nucleus	...	8
Breadth of nucleus	...	1.5
Length of protoplasm	...	14.4
(8) <i>Macrogametocyte.</i>		
Length of parasite	...	38.4
Breadth of parasite	...	9.6
Length of nucleus	...	8
Breadth of nucleus	...	3.2
Length of protoplasm	...	16
Breadth of protoplasm	...	6.4
(This refers to Plates Nos. 4 and 5).		
<i>Dimensions of Two Microfiluriae of Fowls.</i> (Dimensions are in microns).		
(1) Length		
Breadth	...	80
	...	4.8
Excretory pore is situated 17.2 from the head end.		
Anal pore is situated 35.2 from the tail end.		

- (2) Length ... 80
 Breadth ... 6.4
 Excretory pore is situated 24 from head end.
 Anal pore is situated 14.4 from tail end.

HEAMOPROTEUS COLUMBAE OF PIGEONS.

Blood smears of 34 adult pigeons were taken and stained with Leishman's, Panoptic, and Giemsa's methods. The results obtained in staining with these methods were more or less constant, and the drawings attached are self-explanatory. It is noteworthy that all 34 pigeons were more or less heavily infected, and many had double infection of the same cell (Plate No. 6) yet none of them exhibited any signs of ill health.

MORPHOLOGY AND DIMENSIONS OF HAEMOPROTUES COLUMBAE

The Protozoa were mainly seen in the blood corpuscles and a few seen free in the liquor-sanguinis. Many of the red blood corpuscles a double infection.

The Microgametes had their nuclei irregularly diffused in the protoplasm, which at times was eclipsed by them. The protoplasm of the Microgametocytes could frequently be seen at both poles and showed a few thickly pigmented bodies.

The Macrogametocytes had their nuclei concentrated into a compact mass, very often in the centre or nearly so, of the parasite. There was always a number of clearly pigmented bodies in the protoplasm. These pigmented bodies were numerous and not so thick and large as seen in the Microgametes. The Macrogametes were more numerous than those of the Microgametes. The measurements (in microns) of three Macrogametocytes are as follows :—

- | | |
|------------------------|----------|
| (1) Length of parasite | ... 12.8 |
| Breadth of parasite | ... 4.8 |
| Length of nucleus | ... 1.6 |
| (2) Length of parasite | ... 12.8 |
| Breadth of parasite | ... 6.4 |
| Length of nucleus | ... 1.6 |
| (3) Length of parasite | ... 11.2 |
| Breadth of parasite | ... 4.8 |
| Length of nucleus | ... 1.6 |
- (This refers to Plate No. 6).

CONCLUSION.

Leucocytozoa and Microfilariae of fowls and Hæmoproteus columbae of pigeons are common affections here in (Province Wellesley and Penang).

(1) The first case of Leucocytozoa and Microfilariae was discovered in a white leghorn hen from Penang.

(2) Eleven species of Culicidae including Culex Peipins, have been shewn to be of common occurrence in Malaya and it is therefore quite likely that in this species of mosquito we have the transmitting agent of the conditions described in this paper.

(3) Up to the date of writing this paper, I have had three deaths, among fowls from a double infection of Leucocytozoa and Microfilariae. Post-mortem lesions were more or less constant in all three cases.

(4) The writer has failed to infect two fowls, a duck and two pigeons by intraperitoneal injections of lungs, liver and spleen tissues, from a fowl heavily affected with Leucocytozoa and moderately with Microfilariae.

(5) Fowls failed to become infected when inoculated with infected fowl blood which contained the gametocytes and Microfilariae.

ACKNOWLEDGEMENTS.

I am greatly indebted to Captain D. P. White, M.R.C.V.S., Government Veterinary Surgeon, Penang and to Mr. A. Joseph, Veterinary Inspector, Butterworth, Province Wellesley, for their collaboration, and to the former for encouraging me in this work and for enabling me to carry out necessary tests and also for correcting and permitting me to publish this paper.

I am also indebted to Mr. M. Anant Narayan Rao, Lecturer in Parasitology, Veterinary College, Madras, for confirming the diagnosis and for giving me useful information on the subject.

Thanks are also due to Dr. L. S. da Silva of the Government Pathological Department, Penang, for assistance rendered in recording the dimensions of the parasites.

I am grateful to Mr. T. D. Money of the Public Works Department, Penang, for the coloured plates.

Thanks are also due to Mr. Quah Lay Thye, Market Inspector, Bukit Mertajam, Province Wellesley, for help in obtaining blood smears from market fowls.

REFERENCES.

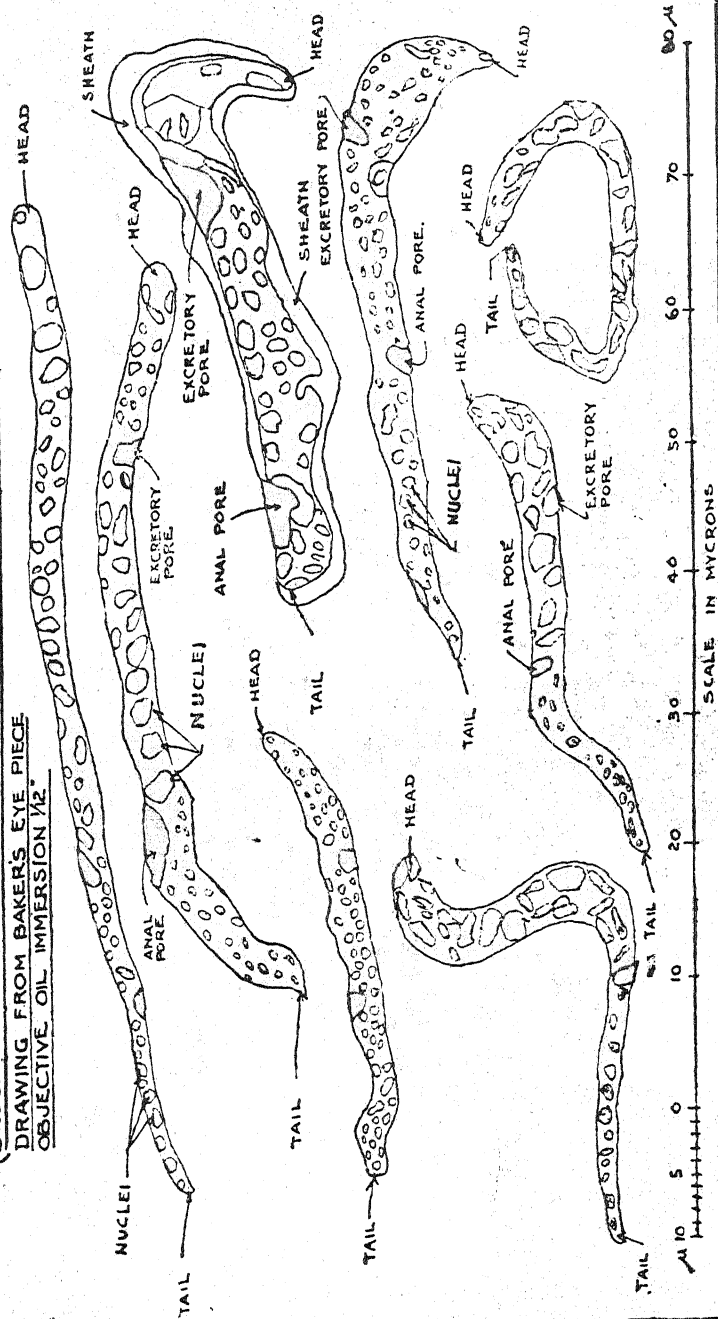
- (1) "A Malaria-like Disease of Ducks" by Professor Earl C. O'Roke.
- (2) "A Manual of Tropical Diseases" by Sir Patrick Manson.
- (3) "Manual of Tropical Diseases" by Castellani and Chalmers.

MICROFILARIAE OF FOWL

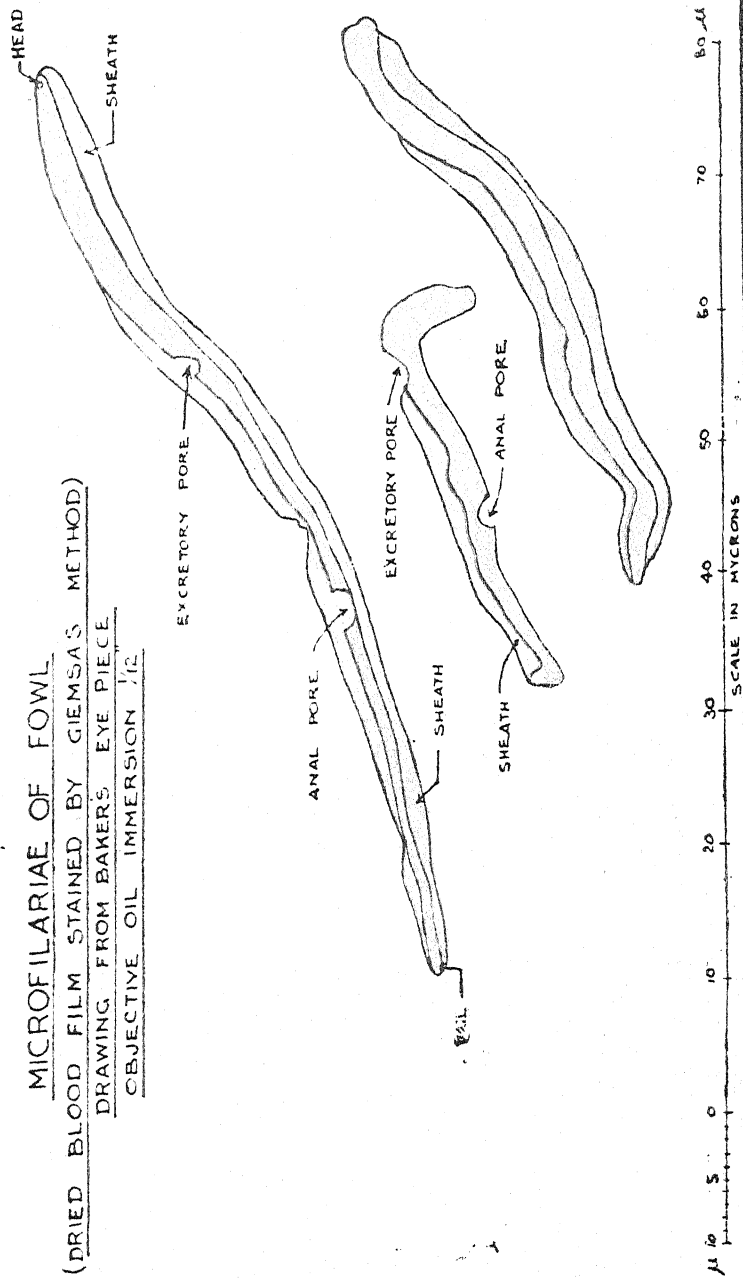
(BLOOD SMEAR STAINED BY HAEMATOKYLIN-EOSIN METHOD)

DRAWING FROM BAKER'S EYE PIECE

OBJECTIVE OIL IMMERSION $\frac{1}{2}$ "

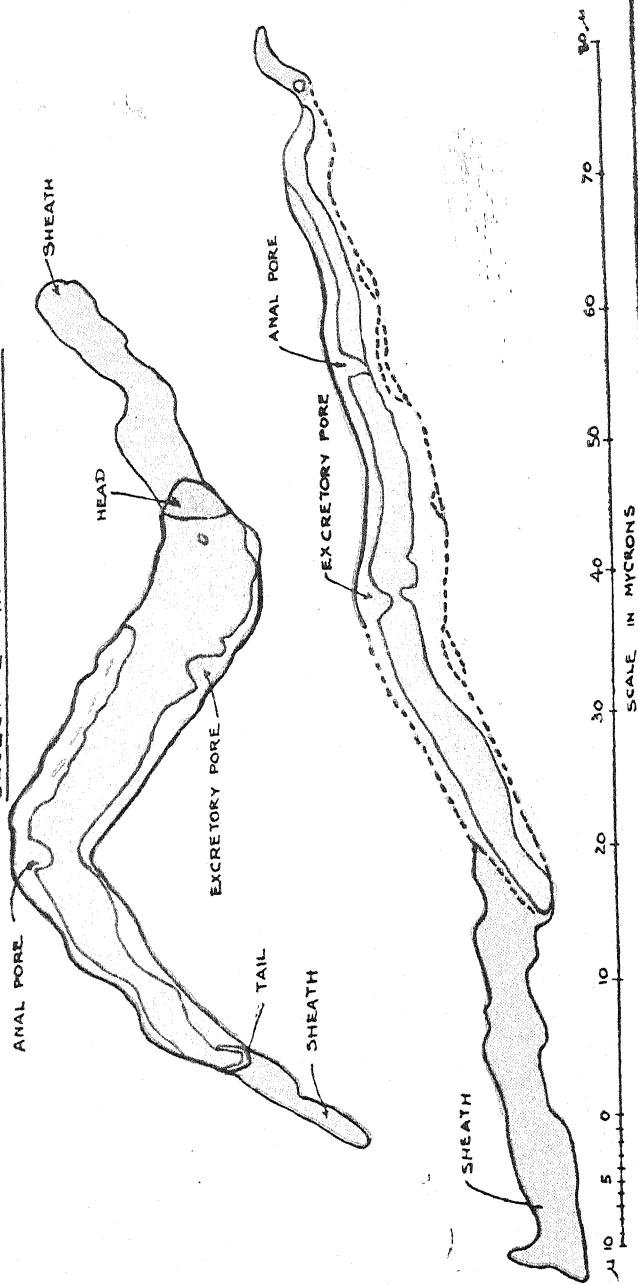


MICROFILARIAE OF FOWL
(DRIED BLOOD FILM STAINED BY GIEMSA'S METHOD)
DRAWING FROM BAKER'S EYE PIECE
OBJECTIVE OIL IMMERSION $\frac{1}{12}$



MICROFILARIAE OF FOWL
(DRIED BLOOD FILM STAINED BY GIEMSA'S METHOD)

DRAWING FROM BAKERS' EYE PIECE,
OBJECTIVE OIL IMMERSION $\frac{1}{2}$.

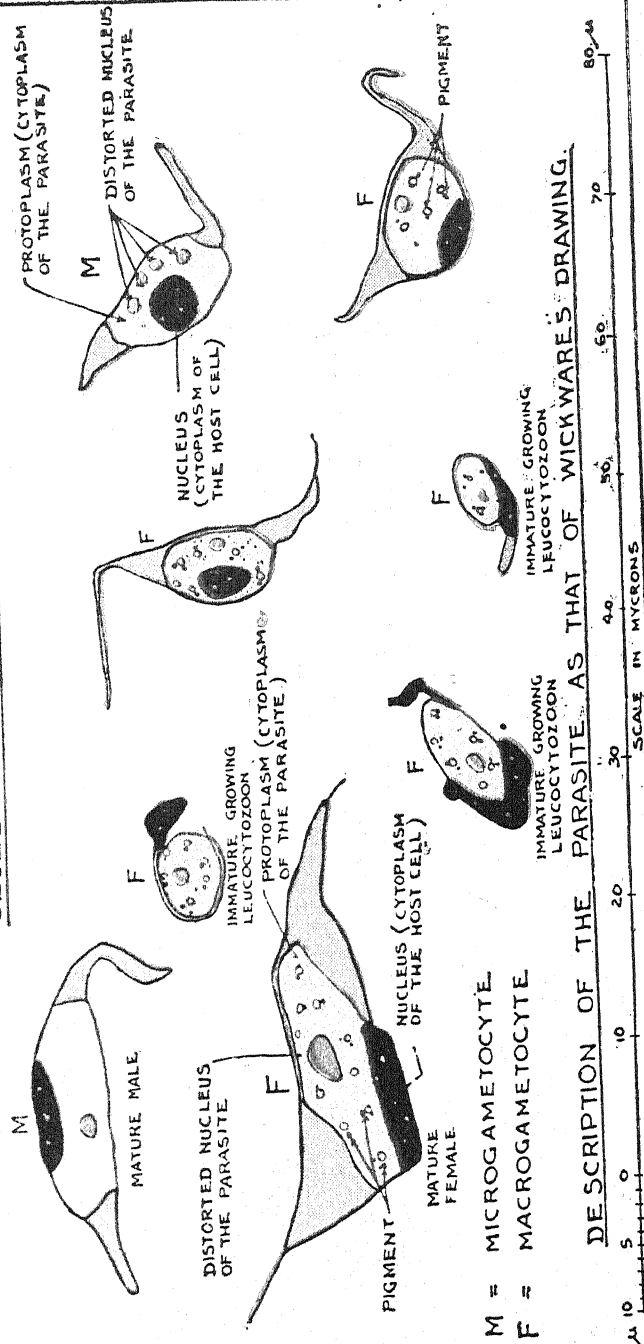


LEUCOCYTOZOA OF FOWL

(DRIED BLOOD FILM STAINED BY GIEMSA'S METHOD)

DRAWING FROM BAKER'S EYE PIECE

OBJECTIVE OIL IMMERSION $\frac{1}{12}$



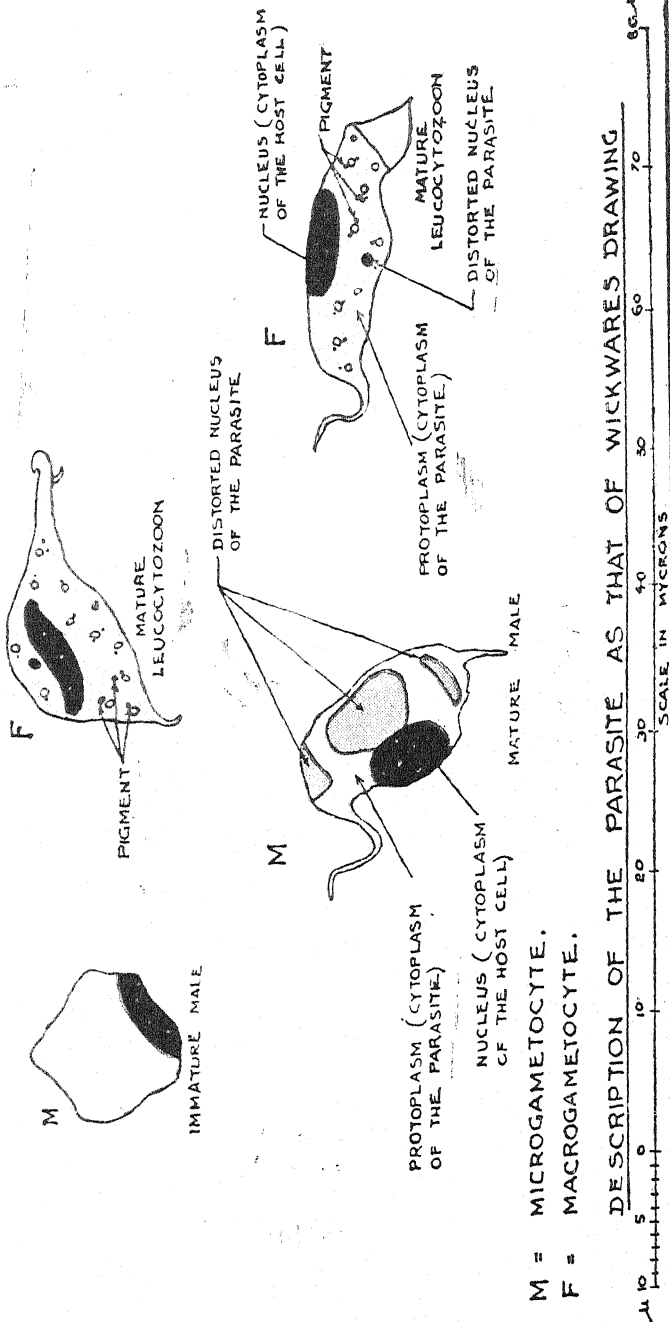
M = MICROGAMETOCYTE
F = MACROGAMETOCYTE

DESCRIPTION OF THE PARASITE AS THAT OF WICKWARE'S DRAWING.

LEUCOCYTOZOA OF FOWL (DRIED BLOOD FILM STAINED BY GIEMSA'S METHOD)

DRAWING FROM BAKER'S EYE PIECE

OBJECTIVE OIL IMMERSION 1/12



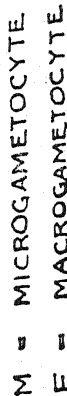
M = MICROGAMETOCYTE.

F = MACROGAMETOCYTE.

DESCRIPTION OF THE PARASITE AS THAT OF WICKWARE'S DRAWING

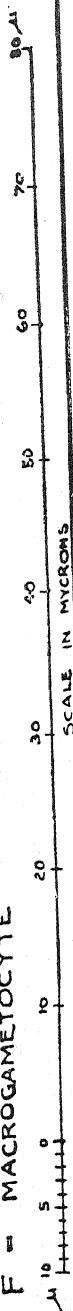
(BLOOD FILM FIXED IN ALCOHOL & STAINED BY DILUTE
DRAWING FROM BAKERS EYE PIECE

DRAWING FROM BAKERS IMMERSION Y12

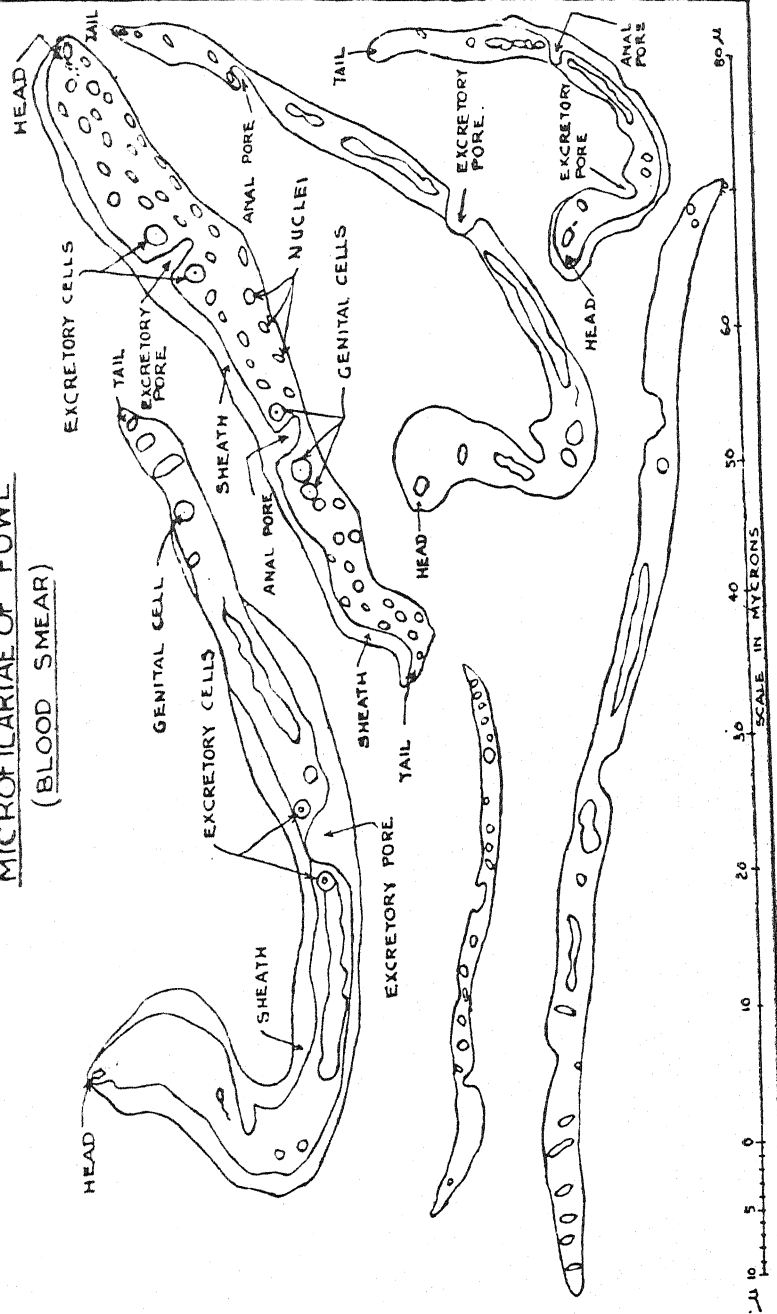


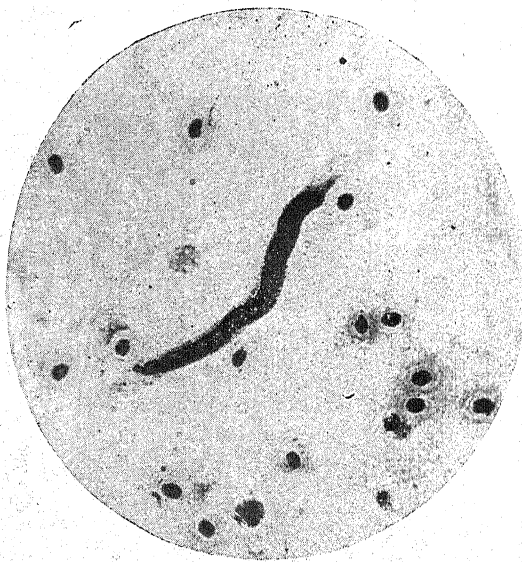
M = MICROGAMETOCYTE

F = MACROGAMETOCYTE



MICROFILARIAE OF FOWL
(BLOOD SMEAR)





Microfilaria of Fowls.

TABLE I.
LEUCOCYTOZOA AND MICROFILARIAE OF POULTRY
Blood smears taken at the Bukit Mertajam Market

Date.	No. of blood smears taken				Leuco- cytozoa	Microfi- lariae	Mixed Infec- tion	Remarks.
	Chickens.		Coc- kerels	Hens.				
	M	F						
9-3-36	4	6	3	4	10	—	2	One hen and one cockerel showed mixed infection, 3 male chickens, 4 female chickens, 1 cockerel and two hens were affected with Leucocytozoa.
10-3-36	5	3	3	6	9	—	—	Three male chickens, two female chickens, one cockerel and 3 hens were affected with Leucocy- tozoa.
11-3-36	2	2	—	3	3	—	—	One hen, one male chicken and one female chicken were affected with Leucocytozoa.
12-3-36	4	1	2	16	8	—	1	Four hens, one male chicken, one cockerel and two female chickens were affected with Leucocy- tozoa, while one cockerel showed a mixed infection.
14-3-36	—	16	6	3	8	—	2	One cockerel and one female chicken showed a mixed infection, while two hens, 4 female chickens and 2 cockerels were affected with Leucocytozoa.

TABLE I. (contd.)
LEUCOCYTOZOA AND MICROFILARIAE OF POULTRY
Blood smears taken at the Bukit Mertajam Market

Date.	No. of blood smears taken.				Leuco- cytozoa	Microfi- lariae.	Mixed Infec- tion	Remarks.
	Chickens.		Coc- kerels	Hens.				
	M	F						
16-4-36	8	8	8	4	13	—	4	One cockerel and three hens showed a mixed infection, five cockerels, six male chickens and two female chickens were affected with Leucocytozoa.
18-3-36	8	—	1	10	5	—	1	Five hens were affected with Leucocytozoa. One hen showed a mixed infection.
19-3-36	8	5	—	2	3	—	1	One hen, one female chicken and one male chicken were affected with Leucocytozoa. One hen showed a mixed infection.
20-3-36	9	1	2	1	2	2	1	One hen and one cockerel were affected with microfilariae, while two male chickens were affected with Leucocytozoa. One female chicken showed a mixed infection.
23-3-36	2	1	7	7	8	—	—	Five hens, two cockerels and one male chicken were affected with Leucocytozoa.

25-3-36	7	—	6	3	7	—	2	Two male chickens showed a mixed infection, while one male chicken, 4 cockerels and two hens showed Leucocytozoa infection.
27-3-36	8	—	3	8	9	—	1	Six hens, 2 male chickens and one cockerel were affected with Leucocytozoa, while one male chicken showed a mixed infection.
31-3-36	2	3	12	4	10	—	—	One male chicken, 3 female chickens, and six cockerels were affected with Leucocytozoa.
TOTAL	59	54	53	71	95	2	15	Six hens, 4 cockerels, 3 male chickens, and two female chickens showed a mixed infection of Leucocytozoa and Microfilariae. One hen and one cockerel were affected with Microfilariae infection. Thirty-one hens, 23 cockerels, 22 male chickens and 19 female chickens were affected with Leucocytozoa.

A SHORT NOTE ON ELEPHANTS AND A FEW OF THEIR COMMON DISEASES.

By

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(Read at the VIII All-India Veterinary Conference, Bombay)

HABITATION.

Elephants are found in their wild state in forests generally in herds and occasionally tusked are found solitary and away from herds. In India, they are found in the Provinces of Burma, Assam and Bengal in the north east and in the Mysore, Coorg and Wynad areas in the south.

Several methods are in vogue for capturing and domesticating elephants. I shall briefly describe some of them.

TEMPERAMENT.

Elephants are very timid by nature, it is this timidity, that has been taken advantage of, to capture them by men. They get ferocious and charge only when they get desperate. They will be docile and love their masters when domesticated, but they are also spiteful if ill-treated. They are intelligent and understand what they are taught to do and obey the commands of the man in charge promptly.

HOW ELEPHANTS ARE CAPTURED.

In Mysore State, elephants are captured either by pit or by Khedda system.

The pit system is usually practised to scare away the herds when they cause damage to crops and to catch such of those that fall accidentally into the pits specially dug and covered, with branches and twigs sprinkled over, with loose earth. This system is also adopted when a limited number of elephants are to be caught and is in vogue from a long time.

The Khedda system is adopted as a sport and in this, the elephants are caught in herds. The Kheddass are usually arranged to afford sport to distinguished personages and sometimes, as a relief to ryots, when extensive damage is caused to crops by herds of wild elephants.

The Kheddass involve heavy expenditure.

This system was first introduced into the Mysore State by the late Mr. Sanderson.

Maidan shikar is a method adopted to capture elephants that are moving singly or sometimes to capture individuals from herds. To capture wild elephants by these methods the Kumki or trained elephants are indispensable.

DOMESTICATION.

The captive elephants are trained in many ways, but I shall describe in brief two most commonly used, the kraal and the open air methods.

1. The kraal is a large cage-like structure of timber of sufficient strength and dimensions to allow the elephant to move about freely. The newly captured elephant is let into the kraal and secured. The training begins thereafter. This consists in getting the elephant used to men and human voice. One man in particular who will be in charge of the animal later on, begins by giving food and water daily both in the mornings and evenings. He begins to give instructions one after another and teaches the animal what it has to do after each command. This goes on from two weeks to two months before the elephant is taken out of the kraal. While in training the elephant is given a bath daily in the kraal itself by throwing water over the animal from outside. Drinking water is given in plenty in a trough kept by the side of the kraal.

2. In the open air method, the hind and fore legs of the new captive are tied up to trees by means of ropes or chains. Two ropes are passed round the neck and fastened to a tree in front. When the animal is taken out to water, the two ropes on the neck are fastened round the belly of two kumki elephants on either side. One hind leg only is fastened to another kumki elephant behind. But in the case of a big sized animal each hind and fore leg may have to be fastened to separate kumki elephants so as to keep the new one under control. While training all the four legs of the captive are tied up and a number of men surround the animal and scrub the animal down. This process makes it familiar to the touch and noise of human beings. After some time the ropes that are tied to the fore and hind legs are removed for a short while, daily both morning and evening. When the elephant gets accustomed to this, the next thing done is to take the elephant out with the aid of kumki elephants assisted above with the trainer sitting on its neck both morning and evening. Then they gradually discontinue the use of ropes and the kumki elephants one after another, as the elephant becomes more docile. It takes about three weeks to three months before they are trained.

There is a difference of opinion as to which of the two methods adopted, is really the better. Some advocate the kraal system and others the open air method. It is said that open air method gives more control over the animal. From the Veterinary point of view the kraal system is better as in "the open air method" the elephants sustain a number of injuries, the most common being severe rope galls, etc. But from the financial point of view the open method may work out cheaper if a number of elephants are caught simultaneously and trained once in many years. If however the operations are conducted annually, "the kraal method" itself may work out cheaper and it is also more humane.

DURATION OF TRAINING.

The duration of training depends upon the age and temperament of each elephant. Generally young elephants are trained much earlier than the aged ones and the cow elephants earlier than the tuskers. Elephants naturally resent captivity. Most of the aged ones specially big tuskers die brooding over their captivity. Some elephants go on hunger strike quite often. To see elephants while they are being trained is not often very pleasant and the visitors sympathise with the captive elephants in their misery, during this period.

DIET.

Elephants are herbivorous. In the wild state they live mainly on bamboos, grasses of various kinds and branches of ficus species. Juicy plants like plantain stems, sugarcanes and standing crops while they are in grains are very much liked. They will be roaming about mostly and eat what they want more or less at all hours except during sleep which is very short.

In their captivity they are fed on various kinds of fodder, including branches of trees and tank weeds, viz. chani. The quantity of fodder necessary varies from 30 to 60 Bengal maunds per day. In addition they are given rice, paddy and wheat flour. The grains are given tied up in small bundles with grass. Wheat flour is made into Chapaties and given with ghee. They also are tied up in grass in small bundles and fed. In Malabar cooked rice is given. The quantity depends upon the age of the animals. In the Forest Department of Mysore, paddy ranging from 8 to 15 seers are allowed daily with 2 to 4 oz of salt in 30 to 60 lbs of straw to each animal.

WATER.

Elephants always like fresh running water. They take a delight to play in water. Elephants in captivity are watered at least twice daily.

UTILITY.

Elephants are reared with various objects. The Princes maintain them as a symbol of Royalty. These were made use of in olden times for purposes of transport in war. Some maintain them for show to exhibit their wealth and some for work. In temples and Mutts they are kept as a mark of honour. Circus troops train and use elephants for show, their huge bulk and their feats are liked by people. The largest use for elephants however is in the forests, for dragging timber and for purposes of shikar.

BREEDING.

Many people think that elephants copulate only while they are in water, but I may state that this is not true. They serve just like other quadrupeds. It is possible that a tusker has covered a cow elephant while the herd is in water but this does not prove the rule. Females come into season from their 14th year and are said to breed till their 80th year.

The duration of pregnancy:—The period of gestation varies from 18 to 24 months. The period of gestation appears to vary with the sex of the foetus, it being about 18 to 20 months for a female calf and 20 to 24 months for a male calf. So far there has been no record of an elephant giving birth to twins. Many cow elephants are found pregnant at capture with suckling calves at foot. This with the period of gestation seems to indicate that cow elephants in their wild state get covered shortly after they calve.

Elephants conceive in captivity as well. It is usually the wild solitary tuskers that serve the tame cow elephants while they are let loose in the jungle for grazing. Such occasions are more often taken advantage of to capture those tuskers. The wild tuskers during their courtship stop with the cows and very often follow them and get so absorbed in their amours, as to be caught though not easily. Capture of such tuskers is difficult and also dangerous. This is another method of capture and is called "Maidan Shikar". Domesticated tuskers also serve the tame cow elephants but such instances are rare. The fact that the wild tuskers serve them seems to indicate that the sexual activity of tuskers in captivity is much reduced or that the wild tusker scares away the tame ones.

The diagnosis of pregnancy in elephants in captivity:—The diagnosis of pregnancy is a problem for obvious reasons. Vaginal or or rectal examinations have not been found to be of much use. It is only the external symptoms that have to be relied upon. In advanced pregnancy, where the development of mammary glands and the movement of the foetus can be seen it is an easy matter to

understand the condition. There are instances of elephants having calved without any manifestations of pregnancy. Intelligent Mahouts who are always on the alert, will sometimes be able to detect early pregnancy because they have chances of seeing the elephant cows in company with tuskers.

Parturition:—Period of labour amongst elephants is short and the act of parturition occupies about an hour. Calving usually takes place in the night. The elephant during labour pains seeks a secluded place, where the ground is soft. There were two instances in my experience in which elephants died of difficult labour. On post-mortem examination it was found that the presentation was lumbar.

Young ones;—Young ones suck, with their mouth and not with their trunks. They live entirely on mother's milk for several months and continue to suck even after they take to eating grass. The elephant calves are always playful and mischievous. Generally the tame mothers do not resent their young being handled by men, but in the wild state they are dangerous.

The new born, will be on its legs and walk in about 2 or 3 hours after birth and follows the mother well enough after a few days on short marches.

VALUE.

The value of elephants depends on the age, sex, height, appearance and on the training they have had. Very heavy prices are sometimes paid, when the animal catches the fancy of the purchaser. Generally tuskers have greater value than cow elephants. The value ranges approximately from Rs. 1000 to Rs. 5,000.

AGE.

Elephants are long lived animals. They are said to live for about 150 years. Elephants die earlier in captivity, than when they are in the wild state. The maximum that an elephant has been known to live in captivity here is about 90 years.

DISEASES.

Elephants suffer from many diseases both contagious and non-contagious. As it is not possible to discuss all their ailments and diseases, I propose to mention the symptoms and treatment of a common ailment under each group.

Earth eating and diarrhœa:—Of the non-contagious diseases, diarrhœa is very common amongst elephants in India. Parasites are the chief cause for this. In all *post-mortem* examinations held on

such cases we find invariably parasites in the intestines. Some of the common parasites met with are:—

1. Bots (*Cabboldia elephantis*).
2. Round worms.
 - (a) *Ascaris lonchoptera*.
 - (b) Two species of *Uncinaria*.

and

3. Flukes.
 - (a) *Amphistomes*.
 - (b) Liver fluke (*Fasciola jacksoni*).

Bots:—Bots are the larval forms of a fly. The bot fly of the elephant is a little bigger than a bee and is dark grey in colour. These are abundant during the early rains. These lay their eggs on hairs in various parts of the body and in males on or at the root of the tusks. The larvae that hatch are swallowed, possibly with food or water.

Round worms:—(a) *Ascaris lonchoptera*:—These are about $1\frac{1}{2}$ to $2\frac{1}{2}$ inches in length.

(b) *Uncinaria*:—These measure about $\frac{5}{8}$ to $\frac{3}{4}$ of an inch. These are small, whitish in colour about the thickness of a thread. These are often found in plenty in the dung, mahouts call these "Soorti or Chotee".

Flukes:—

(a) *Amphistomes*:—These are of flesh pink in colour and are found in the large intestines and sometimes passed along with the dung.

(b) *Liver Flukes*:—These are found in bile ducts. They are dark brown or greenish black in colour.

When elephants suffer from worms they do not usually exhibit any of the serious symptoms. If elephants have worms they usually eat plenty of earth about 10 to 20 lbs., while they are let loose for grazing. It is only after they eat the earth they show some severe symptoms. They become dull, their ears are cold to the touch. They show no inclination for food. The dung gets brown in colour coated with mud. Then diarrhoea commences generally 12 to 24 hours after they eat mud. It will be watery, foul smelling, brownish in colour and with worms in it. When once the diarrhoea commences they stop eating mud. Diarrhoea generally lasts for three days and may

occasionally extend to a week. The elephants get weakened during this time.

Treatment :—Stop all grain rations till the diarrhoea completely stops. Give a dose of vermifuge and an oleagenous purgative to aid nature. Santonin in 1 to 2 drachm dose or Butea Frondosa seeds in 4 to 6 drachm dose, oleum Chenopodium in 1 or 2 drachm dose may be given. These are administered along with food and care should be taken to mix the drugs with jaggery, etc., to overcome the smell or taste of the drug.

In the case of liver flukes, elephants will be eating mud and purge more frequently than in round worm infection. The prognosis in cases of infection with liver flukes is always grave.

Anthrax :—Of the contagious diseases, Anthrax is commonly met with amongst elephants. There was an outbreak of Anthrax in the year 1925, amongst our Departmental elephants working in one of the districts of the State. Out of ten elephants in this group there were four attacks with three deaths. Out of them, two died suddenly. In the case of one of these no definite diagnosis could be arrived at as the carcass presented no characteristic symptoms. In the case of the second one the following external symptoms were observed, highly tympanic condition of the carcass, dark bloody discharge from the anus and mouth and eversion of the anus. The carcasses were burnt.

While arrangements were being made to segregate the other elephants, another elephant by name Raja Bahadur became ill. The first symptom noticed was trembling. In the afternoon it began to show slight colic, but the defaecation and urination were normal. It got an attack of colic at intervals of half an hour. The temperature of the animal was a degree above normal. It died on the third day. Treatment was throughout symptomatic. A stimulant mixture was first administered and later a purgative was given. When the colic became more frequent an enema was given. Anthrax was suspected and was confirmed by microscopical examination of the blood.

The other elephants that were in contact were protected against Anthrax by giving each 500 c.c. of Anti-Anthrax serum subcutaneously.

While the other elephants were being protected another elephant by name Kaveri got the disease. The symptoms presented were as follows. On the 8th July 1926, at 3 P.M., trembling of the hind limbs was observed. In the course of the day she showed lameness of the off fore, became off-feed, was yawning often and developed mild attacks of colic. Temperature rose to 101°6'.F Stimulants were administered. On the 9th July 1925, the temperature was 100°6'. A

painful swelling behind the shoulder on the off side was noticed. An intravenous injection of 1100 c.c. (in the saphena vein) of Anti Anthrax serum was given. Liniments were applied to the swelling and fomented. On the 10th day the temperature came down to 99°6°F. The animal was looking better. The trembling and colic disappeared. It took some food, but was dull. The same treatment for the swelling was continued. On the 11th July 1925, the temperature came down to 99°0°F and the elephant showed much improvement. By the 14th July, the temperature became normal and the animal was itself again.

CONCLUSION.

In this connection, I wish to state that information regarding elephants is little known amongst the Veterinary Surgeons here and nothing or very little is taught about the ailments of these creatures. In view of the large number of elephants that are domesticated for use in parts of India, the Veterinary Colleges should impart some knowledge about the Etiology and Pathology of at least the common diseases of these costly animals. I would like to stress the importance of an organised research being undertaken in this direction in well established Veterinary Institutions.

Clinical Cases.

THE IMPORTANCE OF THE EXAMINATION OF THE MOUTH OF CATTLE SUFFERING FROM DISEASES OF THE ALIMENTARY TRACT.

BY

T. L. ANANTHARAMAN, G.M.V.C.,
Veterinary Assistant Surgeon, Krishnagiri.

Introduction :—The subject that I am dealing with may appear to be trivial at first sight. But it is such trivial things that count if they are overlooked by us during the busy daily routine and lead us to a wrong diagnosis. My only excuse in presenting these few lines is the strange experience which I had in treating diseases of the alimentary tract in cattle during the past three years.

A rough analysis of the cases dealt with by me under the head showed about 30 per cent. of them were due to dental faults such as irregular, overgrown, sharp and worn out molars and some times the very absence of them due to caries; and about 10 per cent were due

to injuries to the tongue and buccal mucous membrane. I shall mention only a few interesting cases which I came across with to show how important my suggestion is.

Case No. 1:—A cow was brought for treatment with the history that she was having irregular molars, and the food or fodder remained in between the cheek and the molars as a hard lump. It was said that she had diarrhoea and was losing condition, in spite of tonics which the owner gave her, and that she had a tumour in the jaw. On an examination of the mouth all the molars were found worn even though she was aged only 8 years, and the suspected tumour was the condition explained above.

Case No. 2:—A bullock came with the history that it suddenly stopped feeding and would not open its mouth. The owner had branded the animal on both the cheeks by way of treatment. The mouth was opened with some difficulty and a needle 4 inches long was found imbedded in the tongue about two inches behind the tip. It was removed and the animal discharged after 3 days' local treatment.

Case No. 3:—A bullock was brought with the history that it was not feeding well, had chronic diarrhoea and was losing condition gradually. Examination of the mouth showed the absence of molars on both sides though the front teeth were normal,

Case No. 4:—A cow, the history being that it had stopped feeding suddenly, did not pass dung for two days and that it drank only water. Examination of the mouth revealed a raw wound about the size of half a rupee under the tongue just on the frimum lingui, which was probably caused by the broken end of cholam stalk, on which this animal was fed. After three days' local treatment the animal was discharged cured.

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RINDERPEST IMMUNISATION,
AT
LIVESTOCK RESEARCH STATION, HOSUR
CATTLE FARM.

BY

MOHAMED RAHIM-UD-DIN, G.M.V.C., P.G. (Edin.).

This work was taken up at the beginning of last June under the supervision of the District Veterinary Officer, Vellore, assisted by the Veterinary Assistant Surgeon of Hosur Cattle farm and of Dharma-puri. Three methods were adopted in the process of immunisation, viz. Serum-simultaneous method, Goat Virus vaccination and Serum-alone method. The herd consisted of Crossbreds, Scindhis, Kangayams, Hallikars and Ongoles, making a total of 330 bovines.

Controls :—Two Crossbred young bulls No. 216 and 217 born in the Farm (unprotected), one country young bull and one country young heifer, both these obtained from outside, and Crossbred bull No. 211 (already protected by serum-simultaneous method) were used as controls. (The last one was used for the study of the action of goat virus on immunised cattle). On 7-6-35, all the 5 controls were injected each with 5 c.c. of goat virus subcutaneously.

i. Crossbred bull No. 216 showed thermal reaction on the third day after injecting virus followed by profuse lachrymation and mouth lesions.

ii. Country bull No. 217 showed similar reactions on the 12th day.

iii. Country young bull had only thermal reaction on the 9th day with lachrymation, but no mouth lesions.

iv. Country heifer on the 14th day showed only thermal reaction.

There was no diarrhoea in any of the above controls.

v. Crossbred bull No. 211 showed no reaction.

On 7-6-35, except Crossbred animals numbering 36 and one Hallikar bull, the remaining 293 animals were immunised by the following methods.

S. S. Method	...	14
Goat Virus Vaccination	...	190
Serum Alone Method	...	89

On 8-6-35, 36 head of crossbred animals were protected by serum simultaneous method using goat virus.

On 9-6-35, 1 Hallikar was vaccinated with goat virus.

Serum Sickness. A few minutes after the injections, 8 cross-bred animals showed serum sickness.

REACTIONS.

(a) *Serum Simultaneous Method*: Among those protected by this method, 11 animals reacted between 4th and 7th day and the rest after the 7th day. Thus the percentage of reaction was 50.

Symptoms of Reactions: Dullness, off feed, staring coat, fever (103.4 to 107.6° F), congestion of the buccal mucous membrane, slight ulceration, lachrymation, nasal discharge and in a few cases slight diarrhoea and vaginitis

(b) *Goat Virus Vaccination*: The age of animals protected by vaccination was between one and three years. The dose of virus was 1 c.c. The number of reactors between the 4th and 7th day after vaccination was 63 and after the 7th day 39 reacted. The percentage of reactors was 53.

Symptoms in reactors: Similar to those in animals protected by serum-simultaneous method.

In some animals there was diarrhoea present and the examination of faeces showed ova of Strongyles. These cases were treated with copper sulphate and mustard. There was no mortality due to severe reaction by any method, and there was neither Babesia nor Coccidiosis in them.

The camp was closed on 1.7.35.

SOME COINCIDENCES.

There was one case of Anthrax and one case of abortion in the inoculation camp.

i. *Anthrax*: One Crossbred heifer, all of a sudden showed high temperature (107.0° F), on the 7th day. It was suspected for Piro, but the examination of blood smears showed Anthrax bacilli and the animal died within a few hours. This finding was subsequently confirmed by the Principal, Madras Veterinary College.

ii. *Abortion*: One Crossbred heifer, five months in calf aborted on the 14th day. As the animal did not show any kind of reaction, it is presumed that it was due to other causes.

CONCLUSION.

i. Reaction to goat virus vaccination appears to be comparatively milder than that obtained in Serum-Simultaneous inoculation with bull virus.

ii. There was no mortality in among the protected animals as a result of vaccination or inoculation.

iii. Occurrence of diarrhoea after a time may be only due to intestinal parasites, particularly of Strongylus species as in cases under report.

Statement Showing the details of reactions in various degrees in the animals vaccinated with goat virus in the Live Stock Research Station, Hosur Cattle Farm, Salem Dt. in June 1935

Date of Vaccination	No. of animals Vaccinated.	Mild Reaction (Thermol only)	Moderately Severe				Severe			very severe	Total Reacted	Total not reacted	Percentage of reactors	REMARKS.
			High tempera- ture (Below 105-107.° F)	Slight lesions in the month etc.	In appearance.	Slight diarrhoea	High tempera- ture	Month lesion etc.	Severe diar- rhoea followed by recovery	Ending in death				
7th and 9th June '35	191 head of cattle (No buffaloes)	62	6	23	5	6	—	—	—	Nil.	102	89	53	No complication either from Piro or Coccidiosis.

Veterinary Hospital,
Hosur Cattle Farm.
13—12—1935.

Vet. Asst. Surgeon.

EXPERIMENT WITH BULL-VIRUS (RINDERPEST) ON ANIMALS PROTECTED WITH GOAT VIRUS

BY

MUHAMED RAHIM-UD-DIN, G.M.V.C., P.G., (Edin.)
Livestock Research Station, Hosur Cattle Farm.

In June 1935, the farm cattle were protected against Rinderpest by various methods, some with Goat-virus alone, some with Serum-Simultaneous with Goat-virus, and the others with Serum-alone methods.

In order to test if any reaction is set up by Rinderpest bull-virus on those protected with Goat-virus, Serum-simultaneous with Goat-virus and on calves born to protected parents, the following animals were utilised. On 16th January 1936, 5 c.c. of bull-virus was injected into each animal subcutaneously and these tests were done under the orders of the District Veterinary Officer, Vellore.

(1) *Crossbred bull No. 215 : born on 10-5-1934*: In June 1935, this was immunised against Rinderpest by Serum-simultaneous method (using Goat-virus) when it did not show any kind of reaction. Now in this experiment also it did not react to bull-virus.

(2) *Crossbred bull No. 216 : born on 13-5-1934 and crossbred bull No. 217 : born on 28-5-34*: these two animals were used as controls in June 1935 and each received 5 c.c. of Goat-virus subcutaneously and reacted *i.e.*, fever, lesions in the mouth and eyes, were present. Now there was no reaction to bull-virus injection.

(3) *Kangayam Bull No. 200 : born on 19-4-1934*. In June 1935, this was protected with Goat-virus alone. It showed only thermal reaction and profuse lachrymation. In the present experiment it did not react.

(4) *Two country young cattle*: These were purchased from outside and used as controls in June 1935, for Rinderpest inoculation camp with Goat-virus. They showed only thermal reaction. They now withstood 5 c.c. of bull-virus without manifesting any signs of the disease.

(5) *Crossbred bull calf No. 702 : born on 24-3-35*. This was born to crossbred cow No. 341 which had been protected against Rinderpest by the Serum simultaneous method using bull-virus on 20-7-1932 and 10-1-1934, crossed by Sind bull No. 38 similarly protected on 28-7-1930 and 15-6-1932. This calf reacted to 5 c.c. bull-virus *i.e.*, it had fever, ulcers in the mouth and around the eye-lids and diarrhoea.

(6) *A country heifer (two teeth)*: As usual this was purchased from outside and used as control in the present experiment. It had only thermal reaction.

SUMMARY.

i. Crossbred animals protected against Rinderpest by the Serum-simultaneous method, using Goat-virus were able to tolerate 5 c.c. of bull-virus, though some of them did not react before *i.e.*, goat-virus vaccination.

ii. Crossbred animals protected with goat-virus alone did not react and withstood 5 c.c. of bull-virus.

iii. Kangayams immunised with Goat-virus alone did not react when 5 c.c. of bull-virus was injected subcutaneously.

iv. Crossbred offspring from protected parents (serum-simultaneously with bull-virus) had not acquired active immunity.

CONCLUSION.

For protecting country and crossbred cattle against Rinderpest, Goat-virus may be utilised without serious risk and with the least expense comparatively. The immunity conferred does not seem to be different from that set up by bull-virus.

**ASCITES IN A DOG, TREATMENT WITH
"NOVASUROL"***

BY

S. V. R. SWAMI,

Veterinary Inspector, Chintamani, (Mysore State).

Subject: A crossbred terrier bitch, aged one year.

History: It was reported by the owner on the 29th February 1935, that the quantity of urine passed by the animal had diminished considerably for the past 20 days and that the abdomen was growing in size every day and that the bowels were constipated, though the animal was feeding as usual.

Symptoms: Respiration was laboured, pulse normal and temperature was 102° F. Abdomen contained large amount of fluid.

Diagnosis: Ascites.

Treatment: That evening, an opening dose of Mist. alba (oz. ii) was given. In the night it had only one motion. Next morning its temperature was 101.0° F, and no change was noticed in the respiration and pulse. The next morning an injection of 1 c.c. of Novasurol was given subcutaneously at 8 A.M. and oral administration of Ammon Chlor. grs. v, T. D. was prescribed. The animal was kept on dry bread and raw meat, but water was restricted. The animal passed large quantities of urine frequently before the evening.

On the following day the temperature, pulse and respiration were normal and the animal took its feed well. Powders containing Ammon Chlor. grs. v, and Diuretine Grs. v, were prescribed, thrice daily.

On the 1st March 1936, it was found that the whole quantity of the fluid in the abdomen had disappeared.

On the 2nd March 1935, another injection of 1 c.c. of Novasurol was given. The animal recovered completely and was discharged on the 5th March. This case is interesting because the animal recovered only with two injections of Novasurol without tapping the abdomen.

COW POX AND ITS SEQUELE*

BY

P. N. MUKUNDU, G.M.V.C.,

Veterinary Inspector, Mobile Corps, Bangalore.

Cow pox is an infectious disease severe enough to be an epizootic, spreading from animal to animal through milkmen and some times through fodder, etc. The generalised form is rare, but the localised form affecting the udder is very common. In a recent outbreak in Bangalore City about 30 animals were admitted for cow pox in the City Veterinary Hospital. Buffaloes and goats affected with pox have also been attended to in Bangalore City Hospital during these months. It is interesting to note that simultaneously there was an outbreak of small-pox in the city. So the common occurrence of the disease at the same time, in bovines, caprines and human beings makes one assume an human inter-relation in the virus which perhaps adapted itself to different species during that season.

The economic importance of the disease in cows is the diminution in the milk yield, consequently loss of income to people who sell milk. This milkman in his turn, to prevent pecuniary loss takes recourse to adulteration of milk which ultimately tells on the consumers, particularly children. A serious loss to the owner of the cow which has pox is Mastitis which very often causes complete and irreparable damage to the milk yield, in which case the value of the animal is reduced to practically to nothing.

The disease—cow pox—may be considered, no doubt, as something which is not serious. It is not serious no doubt as regards life of the animal is concerned, but what I want to point out is the economic loss which follows in its wake. Hence to prevent this, it is expedient

* (Paper read at the 7th Annual Session of the Mysore Veterinary Medical Association, Bangalore.)

that we had recourse to vaccinating all the heifers, non-lactating cows and breeding bulls.

I would suggest that animals be vaccinated inside the ear, a seat which can be kept clean, at the same time it helps us in the identification of the protected animals. Plesky's method of injecting subcutaneously 0.5 c.c. of 1 : 1000 purified lymph, giving a complete immunity from the 5th day onwards, with the appearance of either general or local symptoms may be tried.

Simultaneously measures should be taken to educate milkmen how to control the spread of the disease by segregating and separate milking of the affected animals. He should also be asked to declare such milk or boil it before sale.

Public bodies must be induced to have hospital pounds in charge of Veterinary Assistant Surgeon for the isolation and treatment of affected animals. The Local Bodies should always have their own Veterinary Assistant Surgeons to conduct periodic inspection of all cows and to carry out vaccination of bovines against pox.

HAEMATURIA AND BLOODY DIARRHOEA IN A CAMEL

BY

MOHAMMAD ATHAR KHAN, G.B. & O.V.C.

Veterinary Assistant Surgeon, Salon, Rae Bareilly, U. P.

Subject: Female camel, aged four years, (out patient No. 1628).

History: The animal was bought, a few months ago, with the object of using it as a beast of burden and also for breeding. She is said to have developed diarrhoea and hæmaturia in quick succession within an interval of two or three days between the two and that she has been ill since a fortnight. She was treated primarily by the local quack. The malady instead of giving any favourable response to the treatment took a serious turn. The owner therefore brought it for proper treatment in a Veterinary Institution on 17th February 1936.

Symptoms: The faeces were watery and of grey colour, with streaks of blood stained mucus. Urine Port wine coloured; Temperature normal; condition poor.

The following treatment was given :—

17th February 1936.

R

Pulv. Catechue	...	℥i
„ Chalk	...	℥i
„ Benzoin	...	℥iii

Tr. Opii.	...	℥iv
Aqua.	...	℥v

M. ft. Mix. such 4 doses.

Sig: to be given twice daily. Cold pads on the loin.

22nd February 1936. The Animal was brought to the hospital after two days. Hæmaturia disappeared after the fourth dose of medicine, but blood and mucus in faeces was more than before.

R

White lotion	...	℥ii
Tr. Opii	...	℥ii
Aqua	...	℥iv

M. ft. Haust

Sig. To be given at once.

24th February 1936. On this day it was found that the blood &c., was not present in faeces which continued to be loose.

R

Ferri Sulph	...	℥i
Black salt	...	℥ii
Common salt	...	℥iv
Ammon chlor	...	℥ii
Ginger	...	℥iv

M. ft. Pulv. six such.

Sig. To be given twice daily in treacle and gruel.

The animal was brought after a fortnight for examination and it had got over the complaint but had a fly blown wound on the nasal septum. This was also attended to and cured.

SOME OBSERVATIONS ON THE OPERATION FOR YOKE GALLS AMONG BOVINES*

BY

M. RAMAKRISHNA PILLAI, G.M.V.C.,

Assistant to the Veterinary Investigation Officer, Madras.

Among the few operations which the Veterinarian is called upon to perform, the operation of yoke galls among bovines, in the opinion of the author, probably tops the list both in stationary institutions and in itinerating work and it is a pity that whatever precautions we may take, the percentage of healing by first intention is such as is never to our expectation inspite of the care taken. The

* (Paper read at the Annual Conference of the Madras Branch of the A. I. V. A.),

queer fact that baffles all scientific reason and knowledge is that the small percentage of cases wherein cure is effected by first intention is not necessarily composed of cases that are operated with strict aseptic and antiseptic precautions; and some times for reasons that cannot be fully explained cure does take place even among cases wherein the above measures are not strictly adhered to, and the instances of the three cases that are narrated hereunder come under this category.

When I had an opportunity to operate upon the first case of yoke-gall in a bullock at the Veterinary Dispensary, Royapuram, I thought I would make the best use of the opportunity by attempting the following experiment—if experiment I could call it, and having found entire success in the same, I became emboldened to employ the method on two more cases.

I imagined myself as being in a place where there is not much facility for getting adequate dressings and appliances for a literally scientific operation such as sterile tow, sterile cotton wool, sterile normal saline, collodium, Tr. Benzoin Co. etc., and began the work with a view to study the effects of such an operation as is done with the available material and a little care. The reasons that prompted me to make such an experiment are the difficulties that, I as a touring man had undergone in the past in out-of-the way places, in getting the necessary paraphernalia for such operations and even after getting them the results of the operation were disappointing as regards healing by first intention.

The defective points in my operations were :—

1. The instruments were not boiled.
2. The tow that was used for mopping was not sterile.
3. The wound was not sealed with collodium or even Tr. Benzoin Co.

The part was clipped and mopped with Lysol lotion and after a coating of Tr. of Iodine over the skin, an incision was made with a scalpel that had been previously dipped in carbolic lotion. My hands also were sterilised in carbolic solution. From the time the breach was made on the skin, till edges of the wound were brought together with sutures, I took particular care—of course purposely—not to use any fluid material either sterile saline or an antiseptic but instead, I took a handful of nonsterile tow and used the same again and again for mopping and cleaning the wound without dipping it in any liquid or placing it on any tray but all the while carrying it in my hand either right or left, which was of course a difficult task. This handful of tow was the only quantity used for the operation. If anybody had seen me at the time, they would have had the impression that I

was very clumsy, but I had a purpose in view in doing so. In one of the three cases where the tumour was as large as a cocoanut, a large flap of skin had to be cut out to prevent pouch formation with the result that the incision was almost 10 inches long. In this case there was plenty of capillary bleeding than in the others and I had to apply artery forceps in places to arrest hæmorrhage from some of the larger vessels. Then after mopping the wound well with the tow I simply sutured the wound and let the animal go. The owner was given the usual instruction to tie the animal in a place where it may not have a chance to rub or scratch its neck and to give hot fomentations with dry bran the next morning.

All the three cases were attending the dispensary daily after the operation and I only repeated the application Tr. of iodine on the slightly swollen areas and the owners were asked to apply Neem oil twice or thrice a day around the edges of the wound. After about a week the sutures were removed and the cases were discharged. The appended table shows the details.

Table showing the details of the three cases operated for Yoke Galls.

Kind of animal and O.P. No.	Date of admission.	Date of operation.	Date of removal of suture.	Date of discharge.
3097 Bullock	24-10-35	25-10-35	1-11-35	The date of discharge in all the three cases can be counted for all practical purposes from the date of removal of sutures though one or two of them were coming for a couple of days or so more just for the owner's satisfaction and at his own initiative.
3280 Bullock	6-11-35	6-11-35	13-11-35	
3307 Bullock	9-11-35	9-11-35	17-11-35	

CONCLUSIONS.

1. When an operation is performed on a healthy area, so long as the vitality of the tissues is not interfered with, spontaneous healing by first intention does take place.
2. The use of antiseptic lotions on healthy operated wounds is unnecessary and some times even harmful.
3. The use of liquids, such as carbolic lotions, etc., for washing such wounds should as far possible be avoided and if found

absolutely necessary, normal saline boiled and cooled can be used since it does not seem to interfere with the vitality of the tissues or change the composition of the blood there.

Abstract

**Physaloptera achari n. sp. from Calotes versicolor with a short note on abnormalities in the genus Physaloptera—
M. B. Mirza Reprint Pro. Acad. Sci. U. P. India Vol 5
Part 1 pp. 71—74 September 1935, 4 Figs. 5 refs.**

By

G. N. SRIKANTAIAH, G.M.V.C.,
Serum Institute, Bangalore.

Worms were recovered from *Calotes versicolor* found in Hyderabad (Deccan). The Parasites are slender and attenuated towards both the extremities. The female measures from 26.38×0.59 – 0.71 mm; and the male from $11-17 \times 0.29$ – 0.38 mm. The cuticle is transversely striated and is slightly reflected over the lips. Each lip has a large pointed external tooth. Around the mouth there is a series of large pointed denticles. Externally each lip carries a large subdorsal and subventral papilla. In the female the four uteri take their origin from the common trunk at the same level. The eggs are oval embryonated in utero and measure 0.049×0.027 mm. The various measurements of the positions of the vulva, cervical papillae, excretory pore and the oesophagus are recorded. The bursa in males is voluminous and the anus is ornamented with tubercles. There are two pairs of pre-and two pairs of post-anal lateral pedunculated papillae, and there is one pair of pre-anal and five pairs of post-anal ventral papillae. The first and the second pairs lie one behind the other, the third and the fourth pair close to each other just a little behind the middle of the tail; and the last pair lies near the tip of the tail. All these papillae possess a short stalk.

All the species described from the Australian lizards belong to the group in which there are four uterine branches originating by dichotomous division of the common trunk whereas in this species the four uteri originate at the same level; and this parasite further differs in the arrangement of the ventral papillae and the structure of lips.

The author concludes with a description of abnormalities in two species of genus *Physaloptera*.

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(The species is named after Dr. S. D. Achar, Superintendent, Serum Institute, Bangalore, South India.)

Hotchpotch for Veterinarians.

James (J. F.) Fumigation and Trapping of Mosquitoes.—J. R. Army. med. Cps. 65 no. 4. pp. 267-269. London, October, 1935.

The method of trapping described in this paper was based on the observation that mosquitoes immediately left through open door and windows when pyrethrum was burned in a room. The trap consists of a piece of black cloth 6 ft. square round the centre of which is sewn a thin muslin bag 6 ft. long by 2 ft. in diameter. The cloth is stretched on the wall over a window by means of tapes and nails, and the bag is put through the window and attached to the posts of the verandah or other available support. The doors and other windows of the room are closed and curtained, so that the only light comes through a hole cut in the black cloth and leading into the bag. The room is then fumigated, and the mosquitoes fly towards the only source of light caught in the bag. Comparative tests using such fumigants as cresol, sulphur, pyrethrum, etc., showed that pyrethrum, preferably in the form of one of the proprietary mosquito coils, is much the most satisfactory, 3-4 inches of such a coil being sufficient to clear a barrack of 10,000 sq. ft. in half an hour at a cost of about a farthing. About 15,000 Anophelines, of which perhaps two-thirds were malaria vectors, were caught between 28th September and 5th December in barracks in India occupied by about 2000 troops.

—*Rev. Applied Entomology, Dec. 1935.*

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The Modern Antiseptic. 'Dettol' is now available to doctors in India. This antiseptic has become widely adopted by hospitals and doctors throughout the United Kingdom although it was introduced only 2½ years ago. The reason for this is not far to seek.

The Government report on maternal mortality and morbidity in 1932, stated that the antiseptics then in use left a great deal to be desired and apart from 2 per cent. aqueous iodine nothing could be relied upon to effect complete destruction of haemolytic streptococci on the skin, and to remain an effective germicide when dried.

Soon afterwards Messrs. Reckitt and Sons, Limited of Hull introduced 'Dettol' and subsequent research at the Bernhard Baron

Research Laboratories showed that undiluted Dettol, like 2 per cent. aqueous iodine, was able completely to destroy haemolytic streptococci on the hands, and to render them insusceptible to reinfection by haemolytic streptococci for at least two hours afterwards; unlike iodine, however, Dettol was clean in use and painless in application besides being pleasant smelling. Also a 2 per cent. solution of Dettol was able to kill haemolytic streptococci in two minutes in a 50 per cent. solution of pus and blood—a definite advance on iodine which, being unstable in the presence of blood and pus, was suitable only for simple skin sterilization. Dettol was, therefore, particularly suitable for general cleaning as well.

The full report appeared in the *Journal of Obstetrics and Gynaecology of the British Empire*, (XX, 966, and further details were given during a speech at the British Medical Association Meeting in Dublin.

In *Queen Charlotte's Quarterly* for February 1935, it is now shown: that consequent upon the introduction of Dettol into the labour wards there was a sharp drop in the sepsis rate. Reports of reductions elsewhere, even on a considerable scale, are being received by the manufacturers.

Dettol is three times as effective a germicide as pure carbolic acid (Rideal—Walker test), and being non-corrosive and non-toxic it can be used at highly effective concentrations. These qualities, in addition to its stability, render it of particular value in wound treatment and general surgical applications.

Dettol is now available in India, as it has been placed on the market through Messrs. Atlantis (East) Limited, 20/21, Chetla Road, Calcutta. I. M. G. January 1936.

THE FEW ROUTINE FORMULAS USED AT THE AMBASSADOR DOG AND CAT HOSPITAL

BY

T. G. BEARD,

Los Angeles, California.

These formulas are useful, practical, and easy to prepare.

EAR PREPARATIONS

Haglogen	...	5 parts
Alcohol	...	20 parts
Water		75 parts

This solution should be used freely and warm, (body temperature) using a regular ear syringe. The less an infected ear is probed the

better. After the ear is cleansed and all the solution has been dried out of the cavity, the following formulas are used to treat the infection.

No. 1. Gentian Violet	... 5 parts
Acetone	... 5 parts
Alcohol	... 45 parts
Water	... 45 parts

Take small amount in an eye dropper and place deep into the ear and remove the excess so as not to soil the outside.

No. 2. Phenol	... 3 parts
Glycerine	... 97 parts
(Add Boric Acid powder until the glycerine will not absorb anymore. Let stand over night and strain).	

Place one-half eye dropperful in ear and remove the excess.

In moist types of otitis with very little infection, the following is effective:

20% solution of tannic acid.

80% Glycerine

Place eye dropperful in ear and remove excess.

EYE WASHES.

One of the best eye washes for irrigation and cleansing of the eye and for purulent discharges and conjunctivitis is as follows:—

Sodium bicarbonate	... 15 grains
Borax	... 15 grains
Sodium Chloride	... 15 grains
Glycerine	... 1 dram
Distilled water	... 8 ounces

It is inexpensive to make.

STIMULATING AND ASTRINGENT COLLYRIA.

No. 1. Zinc sulphate	... 1 grain
Boric Acid	... 5 grains
Distilled water	... 1 ounce
No. 2. Tannic acid	... $\frac{1}{2}$ grain
Borax	... $2\frac{1}{2}$ grains
Camphor water	... $1\frac{1}{2}$ drams
Distilled water	... 6 drams
No. 3. Zinc sulphate	... 2 grains
Camphor water	... 2 drams
Sat. sol. boric acid	... 2 ounces

FOR DIARRHOEA IN PUPS AND ADULT DOGS.

Milk of bismuth	... 4 ounces
-----------------	--------------

Paregoric	... 4 drams
Therapogen	... 2 drams

Place in $\frac{1}{4}$ ounce, gelatin capsules and give one three times daily.
For large dogs double the dosage.

MANGE.

Kerosene	... 32 ounces
Creolin	... 6 ounces
Oil of Tar	... 6 ounces
Sulphur	1 pound
Raw linseed oil q. s.	1 gallon

Rub into skin every other day. It gives gratifying results.

Another good oily skin mixture is :—

Gum Camphor	... 1 pound
Alcohol	... 1 pint
Turpentine	... 1 quart
Kerosene	... 2 quarts
Cotton seed oil	... 6 quarts
Sulphur (flowers)	... 9 ounces

Note.—First dissolve the camphor in the alcohol. Rub on the skin every third day.

A good lotion for Seborrhea and milk skin eruptions is :—

Therapogen	... 1 part
Bay rum	... 6 parts
Alcohol	... 6 parts

Rub into the skin twice daily.

MOUTH WASH.

Tincture of iron	... 1 ounce
Pottasium Chloride	... 2 ounces
Glycerine	... 4 ounces
Water q. s.	... 1 gallon

V. M. November 1935.

VITAMIN CHART***VITAMIN A.*****Functions :***

1. Promotes tissue formation.
2. Increases blood platelets.
3. Promotes growth and feeling of well-being.
4. Promotes appetite and digestion, especially in children.
5. Essential to the health and integrity of epithelial tissue and its resistance to infection, notably of eyes, tonsils, sinuses, air passages, lungs and gastro-intestinal tract.

Results of Deficiency :

1. Loss of appetite.
2. Retardation of growth and development.
3. Physical weakness.
4. Susceptibility to disease of the eyes (corneal ulcers), ears (otitis media), kidneys.
5. Interferes with reproduction by failure of ovulation in the female and temporary injury to the semeniferous epithelium in the male.
6. Secondary anemia.
7. Excessive growth of lymphoid tissue.
8. Dullness or perversion of special senses.
9. Formation of kidney stones.
10. Cystitis, gastritis, sinusitis, bronchitis.

Results of Absence :

1. Xerophthalmia (eye inflammation and ulcers).
2. Cessation of growth.
3. Failure of appetite and digestion.
4. Sterility of both sexes.

Most Reliable Sources :

Whole milk, butter, cheese, egg yolk, cod liver oil, thin green leafy vegetables, yellow corns, yellow sweet potatoes, carrots, spinach, green beans, peas, bababas and fish oils.

Vitamin A is destroyed by the irradiation of milk or other foods.

VITAMIN B.

All cooked foods are deficient in this nerve and brain nourishing element depending on the degree of heat and the time the food is exposed to the heat.

* Vitamin Products Co., Milwaukee, Wis.

Functions :

1. Increases appetite
2. Promotes digestion.
3. Promotes growth by stimulating metabolic processes.
4. Protects body from certain nerve and brain diseases.
5. Increases quantity and improves quality of milk during lactation.
6. Stimulates pancreatic secretions.
7. Necessary to maintenance of thyroid and adrenal glands.
8. Necessary to normal function of anterior pituitary.

Results of Deficiency :

1. Impairment of appetite and digestion.
2. Loss of weight.
5. Loss of vigor.
4. Constipation.
5. Emaciation.
6. Subnormal temperature.
7. Pathological enlargement, and functional disorders of the thymus, adrenals, pancreas, testes, ovaries, spleen, heart, liver, kidneys, stomach, thyroid, brain and anterior pituitary.
8. Various manifestations referable to the nervous system, leading to paralysis of groups of muscles.
9. Tendency to diabetes. (Probably the major cause).
10. Tendency to nervous disorders.
11. Tendency to disorders of alimentary mucosa.
12. Tendency to thyroid disorders.
13. Reduces hemoglobin.
14. Loss of sex potentia because of anterior pituitary inactivity,

Results of Absence :

1. Beri-beri (paralysis of certain groups of muscles).
2. Peripheral and other forms of neuritis.
3. Atrophy of certain lymphoid tissues throughout the body.

Most Reliable Sources :

Whole grain cereals, peas, and beans, raw fruits, butter-milk, corn cabbage, spinach, egg yolk, honey, yeast.

VITAMIN C.

Functions :

1. Essential to the health and integrity of endothelial tissues.
2. Cooperates with B in nutrition of thyro adrenal system.
3. Is essential to oxygen metabolism .
4. Cooperates with D in regulation of calcium metabolism.
5. Promotes leucocytic and phagocytic activity.

Results of Deficiency :

1. Tendency to bruise easily, producing "black and blue" spots in skin.
2. Loss in weight.
3. Physical weakness.
4. Shortness of breath.
5. Rapid respiration.
6. Rapid heart action.
7. Tendency to hæmorrhage.
8. Reduced hemoglobin and tendency to certain types of anemia.
9. Hypertrophy and reduced secretion of adrenals.
10. Hypertrophy or morbid secretion of thyroid (toxic goiter).
11. Decrease in weight of spleen, liver, stomach and intestines. B deficiency a co-operating factor in this.
12. Necrosis of pulp of teeth. Most cases of tooth decay are due to vitamin C deficiency.
13. Friability of bones.
14. Swelling and redness of gums.
15. Tendency to disease of blood vessels and heart.
16. Tendency to peptic and duodenal ulcers.

Results of Absence :

1. Scurvy.

Most Reliable Sources :

Green peppers, oranges, lemons, tomatoes, raw or canned (without the addition of soda), bananas, and other raw fruits, sprouted grains green leafy vegetables, potatoes, unpasteurized milk, liver and raw cabbage.

Vitamin C is not stored in the body. A fresh supply must be had every day.

VITAMIN D.

Functions ;

1. Controls calcium equilibrium and regulates mineral metabolism.

Results of Deficiency : '

1. Muscular weakness.
2. Instability of the nervous system.
3. Lack of resistance against infections.
4. Marked increase in specific irritability of nervous tissues.

Results of Absence :

1. Rickets.
2. Deformity of bones in the child.
3. Defective development of teeth.

Vitamin D, the only dangerous Vitamin, Causes Arterio-Sclerosis in Overdosage and Premature Symptoms of Senility.

Most Reliable Sources :

Cod liver oil and other fish oils, egg yolk, whole milk and spinach. Exposure of naked skin to sunshine or ultra violet light. Few foods contain Vitamin D. Nature expects the animal to get this vitamin from the sunshine by the short wave length rays changing the ergosterol in the skin into Vitamin D.

VITAMIN E.

Functions :

1. Necessary to reproduction in both male and female.
2. Probably concerned in the metabolism of calcium and magnesium by increasing their diffusibility in the tissue fluids, and increasing the mineral nutrition to the nervous and muscular tissues. This action also prevents the formation of calcium deposits in blood vessel walls, tendency to arterial hypertension, and loss of motility of eye lens.

Results of Deficiency :

1. Sterility. Deficiency causes permanent and irreparable injury to the semeniferous epithelium in the male, temporary sterility in the female.
2. Mysterious pains in soft tissues, nervous system and muscles.
3. Tendency to cerebral hæmorrhage.
4. Tendency to arthritis.
5. Loss of accomodation in lens and iris of the eye.
6. Dermatitis, eczema, urticaria.

Most Reliable Sources :

Whole grain cereals (whole wheat, whole corn, etc), milk, lettuce, watercress and raw fruits.

VITAMIN F.

(A Growth Factor of Our Own Designation).

Functions :

1. Promotes growth.
2. Concerned with calcium metabolism. Reduces serum calcium, cooperates with Vitamin D if both are present, but aggravates rickets if the supply of D is deficient.
3. Aid in anemic condition of deficiency origin.
4. Improves skin colour and circulation.

Results of Deficiency :

1. Dry skin.
2. Easily fatigued.
3. Distress in hot weather.
4. Constipation.
5. Susceptibility to Vitamin D poisoning.
6. Friability of bones (especially in the aged).

Most Reliable Sources :

Associated with vitamin E in some cereals—oats and rye in particular. Probably present in milk and cod liver oil, and responsible for the greatly reduced toxicity of the vitamin D content of cod liver oil over the synthetic vitamin.

VITAMIN G.*Functions ;*

1. Necessary to growth and development.
2. Necessary to normal calcium metabolism and erythrocyte formation,

Results of Deficiency :

1. Underdevelopment.
2. Cataract of the eye and other calcium deposits.
3. Pellagra.
4. Abnormally slow regeneration of erythrocytes—secondary anemia,

Most Reliable Sources :

Cereal germ, brewer's yeast, eggs.

Notes

The prevailing cry all these days in the country has been " more Veterinary Hospitals are required ; facilities for easy Veterinary aid in the rural parts should be provided ; control of movement of cattle and of cattle markets is urgently needed to prevent the spread of the disease ; stud bulls are needed in each village and town to improve the breed of both milch and working cattle ; model Dairy Farms should be opened to supply plenty of clean milk to the Hospitals, Child Welfare Centres, Hostels and Hotels and the community at large ; 'drink more milk campaign,' should be started ; Veterinary propaganda officers should be appointed ; highest Veterinary Education should be made available in this country for the Indian youths and Veterinary Surgeons should be employed for the inspection of meat and milk and hackney carriage animals".

* * *

His Excellency Lord Linlithgow's presence in our midst at this juncture, as our Viceroy, His keen interest in all the matters of rural welfare and above all the splendid lead given by him in presenting three stud bulls to Delhi area at his own cost, have created the hope that the needs briefly enumerated above will soon be supplied. His Excellency has already addressed the Provincial Governments on the subject of Livestock improvement and called for quarterly progress reports. Already we see that the local authorities, the press and the public have taken up the problems of Live-stock improvement and breeding themselves with several phases of this movement. We hope that substantial results will come off during the Viceroyalty of His Excellency Lord Linlithgow.

* * *

A large number of Veterinary Institutions located in rented buildings, in the Presidency of Madras have been deprived of the temporary thatched sheds intended to serve the purpose of cattle ward, operation theatre and waiting and dressing sheds, as they had been constructed within the 15 yards of the main buildings for want of space in the premises. The result is, patients brought to the Hospitals from large distances and requiring treatment as in-patients, have no shelter against rain and winds. Their owners or attendants have similarly no place to shelter themselves within the Hospital premises. Operations have to be done in open air in the hot sun and rain and exposed to high winds. An inquisitive crowd gathering round the subject and the operator is a common sight. Dressing and

ordinary treatment have also to be done in the open air without any shelter. There is no post-mortem room attached to any of the Veterinary Institutions located either in the rented or Government buildings. Such examination either under legal requisition or for study has to be done in the open fields surrounded by eager and inquisitive crowds on filthy grounds. These and some other similar conditions neither encourage the staff to do their work nor enhance either the value or the reputation of the profession.

* * *

The District Officers and the Director who are not required to attend to any of these professional duties cannot realise the suffering of the subordinate staff and the resultant loss or waste of more than one kind. In quick succession, the Imperial contribution of Rs. 1,500,000/- to the Provincial funds, the Silver Jubilee funds, and the King George V Memorial funds became available for the benefit of the Rural area and the relief of the sick and suffering. The Veterinary Institutions attend to the needs both of the rural areas and the sick and the suffering. We have not so far heard if any portion of these funds were asked for and given to the Veterinary Institutions for providing some of the bearest necessities mentioned in the above para. We strongly suggest both to the authorities in charge of these funds and the Veterinary institutions to consider some of these urgent needs of the Veterinary Dispensaries and Hospitals and provide funds for such non recurring items.

* * *

Because, the Government will not spend out of its own funds for building either permanent or semi permanent, in rented premises. But the allotments may be obtained from these funds for constructing sheds and shelters with such materials which can be removed and taken to the permanent premises when they become available. Surely providing for the relief and comfort of the sick and suffering animals will also come under the item "Relief of the sick and the suffering". It is up to the heads of Veterinary Departments to bring home these facts to the authorities concerned and persuade them to include the several Veterinary needs in the programme. Will they do it? We hope they do it.

* * *

The Honourable the Minister for Development Department in the Madras Presidency is not tired of expounding the policy adopted by him and his Government at the instance of the last Retrenchment Committee, in the matter of establishing new Veterinary Dispensaries and Hospitals in the presidency. 'That Local Bodies, the Muni-

palities and private institutions or persons should come forward with the request to open the Veterinary institutions and they should also offer to bear a decent portion of the initial and recurring expenditure of such institutions.' With their slender resources, the Local Boards and Municipalities cannot be expected to come forward with such offers. The Government and the Minister have no power at present to compel these to provide veterinary aid either of a curative or of a preventive nature.

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Excepting a handful of Zamindars, no body has come forward in recent years with such offers. We do not know if any attempts were made from influential quarters, to tap private charities for this purpose. There are some big temples with large endowments and annual incomes and there are many Zamindars and rich merchants, such as Nattukottai Chettiars in the presidency. We find in the neighbouring state of Mysore, the District Boards, Municipalities and private philanthropic people coming forward to help the Veterinary Department with buildings and funds. Unfortunately we do not see such cooperation in this presidency in this respect.

It should not be difficult to tap such sources even in Madras if the authorities from the Minister downwards, would move in this direction. What is required is the personal contact and presenting the several needs in the persuasive and telling manner in proper quarters.

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The unemployment problem even in this small veterinary profession which is yet in its infancy in this country, has been growing annually, in spite of the fact there is great need for the services of the qualified veterinary surgeon. In southern India, especially in Madras and Mysore, no *Brahmin* Veterinary surgeon has been entertained in recent years and it is said, he will not be recruited to the public service until the communal ratio is well established in the Veterinary Department. At the time when these were admitted into the Veterinary college they were not told of such a contingency. Even to day we are not sure if the *Brahmin* students are told of this fact at the time of their admission into the college. We have no quarrel with Government if they refuse to recruit *Brahmins* into the Veterinary Department. At present the Government is the only agency which can employ a Veterinary surgeon. Let the *Brahmin* student be clearly told at the time of admission that he will not be admitted into the public service for so many years to come. Still if he risks he alone is to be blamed. We are only anxious that the unemployment problem should not unmanageably become great even in this profession.

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We have often pointed out the necessity for treating the menial staff of the Veterinary Dispensaries and Hospitals in the Madras Presidency, in the matter of their pay, leave and pension, in the same manner in which the peons of Touring Veterinary Assistant Surgeons are treated at present. The authorities have not seen their way to consider this subject. It is all very well to move, discuss and pass resolutions in Geneva to provide "holidays with pay" to labourers. Here are Government Institutions whose menials are whole time Government servants doing day and night duties of a risky nature, but paid from the contingencies with no pension and no leave with allowances except such casual leave for a few days, as any domestic or private servant will get.

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Since the introduction of this system of treating in an indifferent way the menial staff of the Veterinary Institutions in the Madras Presidency some twenty five years ago, the work has considerably increased in each institution, in some cases necessitating the employment of these menials far beyond the usual hospital hours. They are expected to be quite honest and hard-working and to their credit it must be said that most of them are so. It is high time that their case is reconsidered by the authorities and they are given better treatment with pensionable service.

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We feel glad to announce that the Madras Veterinary College has at last been affiliated to the Madras University and that the course of study for the new B. V. Sc. Degree has already commenced on 2-7-36. This College will however continue to prepare students for the Diploma under the improved curriculum introduced in 1930, and the course of study for the new Degree will be the same as that of the Diploma with certain additions. The examination for the Degree which will be conducted by the Madras University will consist of the preliminary, the Intermediate and the final and will be open only to such of the students who have qualified themselves for the corresponding Diploma course with the new curriculum, if they are intermediates in science.

It may now be said that the Madras Veterinary College with its present standard of teaching is second to none in India. We have in these columns often had occasion to point out that three years period even for the Diploma Course was too short for the preparation of students up to the required standard of efficiency. Now that the affiliation of the Madras Veterinary College to the University is an accomplished fact, we hope, the question of

maintaining the highest standard possible with an extension of the course to 4 years in the first instance will be considered.

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We feel glad to inform our readers that Dr. G. S. Rathore, G. V. Sc., D. V. M., has taken his D. V. M., degree on the 25th of May 1936, from Kansas State College, Manhattan, Kansas, U. S. A., While congratulating him on his success, we wish him every success in his further attempts.

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Numerous friends of Dr. K. B. Nair, G.B.V.C., V.S., B.V.Sc., will be glad to learn that he has received the Diploma of Graduation from the Ontario Veterinary College and the Degree of Bachelor of Veterinary Science from the University of Toronto and that he has gone to London for further knowledge. We congratulate him on his attainment and wish him every success.

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We are pleased to know that Dr. S. G. Desai, G.B.V.C., Veterinary Surgeon, Vyara, Baroda State, who had gone for further studies in Veterinary Science to Edinburgh, has returned to Baroda after completing the Post Graduate Course in D.T.V.M. (1935—36) at the Edinburgh University with very good certificates. We feel sure that the State will very much be benefitted by his increased knowledge.

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We feel glad to announce for the information of the numerous renders of our Journal that Wilhems Ellenberger Scholarship in Veterinary Science has been awarded to Mr. P. C. Nag, G.B.V.C. (Cal.), Veterinary Assistant Surgeon, Shilhet, Assam, by the Indian Institute of the Deutsche Akademie for the academic year 1936—37, to carry on higher studies, in German University. We wish him every success in his studies.

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Members are informed that the index for the twelfth volume of the Journal and the accounts for the same period will be published in the next issue. *E. D.*

* * *

We have received a copy of the report of the Proceedings of the Twelfth International Veterinary Congress held in New York in 1934, from the Organising Committee of the Congress, free of charge, and we feel thankful to Dr. H. Preston Hoskins, the General Secretary of the Congress for his efforts in arranging to send it to us as a special case. The publication which is an illuminating report of a very important session of the Congress is published in three volumes and contains a lot of useful information on many subjects of abounding

interest. Papers on different subjects discussed at the Conference are of such vital importance that for years they will be referred to by Veterinarians, as an important book of reference. The three volumes should find a place in the Library of every Veterinary Institution, practitioner and student.

The Secretary of the Congress announces that the three volumes consisting of the report are offered for 5 Dollars which is less than the cost of publication. The prudent Veterinarian will obtain his copy before the limited supply available for public distribution is exhausted. Copies can be had from Dr. H. Preston Hoskins, Secretary, Twelfth International Veterinary Congress, 221, M. LaSalle Street, Chicago, Illinois, U. S. A.

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The Government of Mysore are very enterprising in all the activities of all their departments. The Superintendent of Mysore Serum Institute returned only a few weeks ago from his South Indian tour, and now he has been deputed to the Deccan and Northern Indian institutions to study the local conditions and to find markets for the numerous products of the Institute, which is ever extending its activities.

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We heartily congratulate Dr. Mian Illamdin, Head Veterinary Inspector, Army Remount Department, Shahpur Area, Sargodha, Punjab, Babu M. P. Ghosh, Assistant Director, C.V.D., Eastern Range, Bengal, Dr. M. Datice, Stationary Veterinary Assistant Surgeon, Chittagong, on their being the recipients of King's Birthday Honours, of Khan Sahib, Rai Sahib and Kaiser-I-Hind Medal (3rd class) respectively.

College News.

BOMBAY VETERINARY COLLEGE.

List of Candidates who passed in the final year of Diploma Examination in April, 1936.

- | | |
|-------------------|--------------------|
| 1. Shanta W. P. | 7. Reddy M. R. |
| 2. Ponnuduray K. | 8. Jaganath Sinha. |
| 3. Shivaprasad P. | 9. Devnani P. M. |
| 4. Rawal U. K. | 10. Urs G. K. |
| 5. Naidu T. C. | 11. Khan A. M. |
| 6. Desai R. N. | |

BOMBAY VETERINARY COLLEGE GOLDEN JUBILEE CELEBRATION FUND

Date.	R. No.	Name	Address.	Donation Rs. A, P.
<i>Amount already acknowledged in the April issue of the Indian Veterinary Journal</i>				647 11 0
Mar. 27	71	Mr. A. J. Patel	Vagra, Broach	6 0 0
	72	„ V. Narain Navangul	Akola	2 0 0
Apl. 1	73	„ B. G. Behre	Taloda, W. K.	3 0 0
	74	„ L. G. Amone	Medha, Satara,	3 0 0
„	75	„ M. D. Vaishnav	Broach	5 0 0
„ 7	76	„ S. V. Modak	Pachora	5 0 0
„ 15	77	„ M. H. Bhatt	Ankleshwar	5 0 0
	78	„ H. B. Atodaria	Bansda	2 0 0
„ 20	79	„ G. H. Joshi	Panvel	4 8 0
May 1	80	„ R. N. Sane	Wai	5 0 0
	81	„ B. A. Deurukhkar	Talegaon Dabhade	8 0 0
	82	„ G. D. Bhagwat	Tasgaon	5 0 0
	83	„ T. R. Khaladkar	Poona City	7 0 0
	84	„ S. B. Hanchlikar	Poona	6 0 0
„ 15	85	„ D. S. Veena	Malshiras	5 0 0
„ 16	86	„ T. N. Kulkarni	Karad	5 0 0
	87	„ K. Hewlett Esqr., M.R.C.V.S.	England	10 0 0
	88	„ V. R. Phadke, Esqr.	Bombay	55 0 0
	89	„ Y. N. Marathe, Esqr.	Poona	55 0 0
	90	„ A. H. Khan	Bombay	22 0 0
	91	„ K. R. S. Aiyer	do	15 0 0
	92	„ S. Shrinivas Iyer	Hoshangabad	10 0 0
	93	„ G. H. Khan	do	2 0 0
	94	„ Y. K. Shete	Sholapur	7 0 0
	95	„ V. T. Kirtane	Poona	6 0 0

C. F. s. 946 3 0

Date	R. No.	Name B. F.	Address	Donation Rs. A. P. 946 3 0
May 20	96	„ D. S. Purohit	Pandharpur	3 8 0
	97	„ M. G. Dixit	Rahimatpur	2 8 0
„ 25	98	„ G. R. Pathak	Poona	5 0 0
„ 29	99	Rao Saheb Subramania Mudr.	Vallakal Tinnevelly	10 0 0
	100	Capt. Sardar M. S. Apte	Gwalior	20 0 0
June 8	101	Lt, Y. K. Mainkar	do	5 0 0
	102	Mr. J. M. Bhat	Old Bahavnagar	10 0 0
„ 16	103	„ V. G. Revankar	Sirsi	2 0 0
„ 18	104	D. S. Laud, Esqr.	Bombay	50 0 0
„ 19	105	Mr. R. G. Sathe		25 0 0
„ 20	106	„ S. J. Khambete		10 0 0
	107	„ P. B. Cardmaster	Bombay	15 0 0
„ 22	109	Khansaheb, D. F. Dubash	do	10 0 0
	110	Mr. S. N. Ranina	do	15 0 0
	111	„ N. K. Barsikar	Kolhapur	5 0 0
	112	„ V. N. Kulkarni	Dharwar	10 0 0
	113	„ G. G. Page	do	5 0 0
	114	„ S. V. Deshpande	Indi, Bijapur Dist.	6 0 0
	115	„ C. R. Sane	Shevgaon Ahmednagar Dt.	5 0 0
Total				<u>1,150 3 0</u>

Receipts Nos. 70, 93 & 108 have been cancelled on account of clerical errors

D. S. LAUD,
Hon : Treasurer.
22-6-1936.

BENGAL VETERINARY COLLEGE

List of candidates who have passed in order of merit the
Diploma Examination of the Bengal Veterinary College
for the session 1935-36.

1	H. S. Swami.	18	{ S. P. Datta.
2	K. Malliah,		{ A. K. Banerjee.
3	J. C. A. Prins.	19	{ C. M. Thomas.
4	{ M. V. Menon.		{ K. L. Dey.
	{ B. K. Bose.	20	{ D. Gopal.
5	D. N. Chatterjee.		{ C. M. Sen Gupta.
6	{ B. Chandrasekhar.	21	B. G. Rajan.
	{ C. M. Fernando.	22	B. N. Chowdhury.
7	B. Chatterjee.	23	M. F. Elahi.
8	G. B. Shahanya.	24	A. Royce.
9	T. S. N. Rao.		{ D. B. Chatterjee.
10	R. V. Nair.	25	{ A. C. Cherian.
11	{ P. Ramachandra Rao.	26	K. M. N. Rajan.
	{ K. N. Katiyar.		{ D. R. Bapurao.
12	R. Ramaswami.	27	{ B. V. Shesagiri Rao.
13	R. K. Raj.		{ S. K. Gupta.
14	A. S. Nair.	28	R. G. Naidu.
15	G. F. Rahman.	29	D. C. Bhattacharjee.
16	{ T. S. Sastry.	30	R. Ahamed.
	{ N. V. Narayan.	31	L. D. Ram Singh.
17	{ R. N. Ganguly.		
	{ A. K. Dutt.		

BIHAR VETERINARY COLLEGE, PATNA.

Students who passed the Diploma Examination, 1935-36,
held in March and April, 1936.

1	P. Toppo.	6	M. Nizammuddin.
2	S. M. Moosa.	7	D. N. Tiwary.
3	B. Rahman.	8	R. S. Kaushal.
4	P. Mahato.	9	B. Samal.
5	S. M. Ishaque.		

R. T. DAVIS, I.V.S.,
Principal.

PUNJAB VETERINARY COLLEGE, LAHORE.

The following students of the Final Year Class of the Punjab Veterinary College, Lahore, have passed the Diploma Examination, held in May and June 1936.

4th Year (L.V.P.)

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|------------------------|-------------------|
| 1. Mohd. Nawshad Khan. | 6. Bhag Singh. |
| 2. Mehr Chand. | 7. Sardar Ali. |
| 3. Janki Nath. | 8. Mohammed Azam. |
| 4. Mehd. Irfan. | 9. Abdul Hamid. |
| 5. Raghunath Rai. | |

*Failed in Compartment :—*Prem Nath.

W. TAYLOR, I.V.S.,
Principal, Punjab Veterinary College.

MADRAS VETERINARY COLLEGE.

The following grauduates have been selected for the Post Graduate Course during 1936—37.

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|--|---------------------|
| 1. Dr. P. A. Vaidyanatha Ayar, G. M.V.C. | } <i>Madras.</i> |
| 2. „ S. V. Soundararajan, G. M.V.C. | |
| 3. „ K. Mallikarjuna Rao, G. M.V.C. | |
| 4. „ J. C. David, G. M.V.C. | |
| 5. „ K. P. Doraiswami, G. M.V. C. | |
| 6. „ K. S. Ramaswami Aiyar, G. M.V.C. | |
| 7. „ T. L. Mahadeva Rao, } | } <i>Hyderabad.</i> |
| 8. „ Shujat Baig | |
| 9. „ K. P. Ponnudurai, G. B.V.C. | <i>Ceylon.</i> |
| 10. „ Y. G. Shanta, G. B.V.C. | <i>F.M.S.</i> |

Notice.

The Provincial Association and the Members of the profession in this country may remember that the Golden Jubilee Celebration of the Bombay Veterinary College and the Special Jubilee Session of the All-India Veterinary Conference will come off in the Christmas week this year in Bombay. The exact date will be announced later on.

It is really unique that the pioneer Institution has been able to celebrate the Golden Jubilee of its useful career and the occasion has been rightly considered by all to be one of All-India importance. Many members from several parts have already expressed their desire to attend and actively participate in the function. It is therefore expected that many members will meet on the occasion.

The Committee has been making arrangements to celebrate the function in a fitting manner. So far financially there has been a good response and the Associations and individuals are expected to contribute liberally towards the funds to meet the several demands on the occasion.

As already announced, Medals will have to be awarded to the members who have done meritorious work in the profession in this country. The Provincial Associations are requested to forward such names in accordance with the announcement already made in this connection and also to liberally contribute funds to carry out this laudable object.

Papers to be read at the Conference may kindly be sent to reach me on or before the 10th November 1936.

Anantapur, P. O., }
Anantapur Dt., }
Madras Precy. }

M. S. SASTRY, G.B.V.C.,
General Secretary,
The All-India Veterinary Association.

Communications.

To

THE EDITOR,
The Indian Veterinary Journal,
Madras.

Dear Sirs,

I beg to send you enclosed some further press notes regarding the VIth World's Poultry Congress. I should be very much pleased if you would use them.

Very truly yours,
(DR. KUPSCH)
Secretary General.

WHY WORLD'S POULTRY CONGRESSES ?

BY SIR EDWARD BROWN, LL.D., F.L.S.

The World's Poultry Science Association was formed in 1921, on the initiative of the American Association of Poultry Instructors and Investigators, at an International Conference held in London, England, that year. Then I was elected President, and continued to hold that office until 1927. It enabled steps to be taken for giving expression to an idea which had been in my mind for a considerable period of time, namely, the bringing together from every nation of those interested in Poultry Husbandry for interchange of experience and knowledge. The greater production of what had become essential food supplies in the shape of eggs and poultry, was affording opportunities for a rapidly increasing number of producers in many countries. The need had become evident that the cooperation and support of governments, teaching institutions and scientists, were essential, of which there was very little evidence.

From 1880 onwards it had been my privilege to study conditions in nearly all European countries from Russia and the Balkan States westward, also in Canada and the United States, of which several reports were published. Such observations had shown that whilst all nations had much to learn from others, the majority of these had contributions to make of considerable value. Thus was born the conception of calling together international assemblies for the pooling of knowledge already gained, and thus extend interest in what had been a subsidiary pursuit on a non-economic basis or a sport in breeding for exhibition.

Meanwhile the first National Poultry Conferences were held at St. Petersburg, Russia, and Reading, England, both in 1909. Each of these, and a further one at Reading, England, in 1907, was a great success and exerted a wide spread influence. Whilst the Exhibition side was represented the rapid increase of production for supply of food was becoming very prominent.

In this connection an important factor may be mentioned. Except in the United States of America, Poultry breeding and production was, in the main, omitted from the curricula of Agricultural Colleges, or had any part in the operations of Research Stations and Institutions. The chief reason was that Poultry at the time named did not offer a satisfactory career for advanced instructors, experimentalists and scientists.

To secure advance in the direction indicated it was necessary that governments of the respective countries should realise that Poultry was a branch of live stock capable of great extension with nearly all classes of people, and warranted the expenditure of public money in its development. It was no longer merely a hobby or a side line for farmers' wives. Properly conducted it offered a substantial source of income, as had been the case specially in Belgium, Denmark, France and Ireland. This was a main reason for the World's Poultry Science Association and a World's Poultry Congress. The first of these was held at the Hague, Holland, in 1921. Thanks to the generosity and effective organisation of the Netherlands government the First Congress was a great success. Its influence was world wide, and was confirmed at succeeding Congresses at Barcelone, Spain, in 1924, Ottawa, Canada, in 1927, London, England, 1930, and Rome, Italy, 1933. Not only by increased production, but an extension of instruction, and an ever growing number of scientists engaged in research. We anticipate that the VIth Congress to be held in Germany, from July 24th to August 2nd, 1936, will still further emphasise those that preceeded it.

When the holding of a Congress was first proposed several offers were made on the part of private individuals and societies. It was, however, determined, that invitations must be from governments prepared to officially invite others to participate. Only by so doing could it be hoped the response would be satisfactory. Such attitude has been abundantly justified. Whilst the advance made has been remarkable, the need for continuation of these assemblies is greater than ever. New problems are being presented, some of which are self created.

Therefore, to answer the question, "Why World's Poultry Congress?", it is only necessary to state—

That these bring together once every three years practitioners in poultry breeding and production for exchange of their experience ;

That those who are engaged as instructors are enabled to compare the results achieved, and to make known their progress and difficulties ; and

That in these Congresses the peoples of all nations are brought into closer contact and unity. In that respect the Poultry Industry knows no frontiers or barriers.

THE SCIENTIFIC WORK AT THE VIth WORLD'S POULTRY CONGRESS.

The General Papers and the Section Papers. The VIth World's Poultry Congress shall summarize the scientific and practical progresses of the past years. The most outstanding scientists and experts have been won for these reports. In six sections the following questions will be discussed :

Section 1 : General, instruction, organization.

Section 2 : Physiology of the egg

Physiology and Feeding of poultry

Section 3 : Hatching, Rearing, Breeding and Heredity

Section 4 : Hygiene and Disease

Section 5 : Questions of Economics

Section 6 : Rabbit Breeding.

The General Papers deal with the following subject :

1. International Laying Contests by a Committee consisting of Prof. Ghigi (Italy), Dr. Taussig (Austria), Dr. te Hennepe (Holland).

2. International Efforts and Prescriptions of Veterinary police in Relation to Infectious Poultry Diseases by Prof. Dr. H. C. L. E. Berger (Holland).

3. International Dictionary by Dr. von Burgsdorff, Garath (Germany.)

4. The Organization of Poultry and Small Stock Keeping in Germany by Karl Vetter, President of the German Union of Small Stock breeders, Berlin (Germany).

5. Nutritive value of Protein Supplements by Dr. J. L. St. John, J. S. Carver, O. Johnson, Dr. Brazie, Washington (U. S. A.)

6. The Role of Minerals in the Nutrition of Poultry by Capt. E. T. Halnan, Cambridge (England).

7. The importance and the role of vitamines in the nutrition of Poultry by Prof. H. Simonnet, Alfort (France).

8. The Utilization of the various Poultry Feeds by Prof. Dr. Mangell Berlin, (Germany).
9. Keynotes of Progress of Artificial Incubation by Prof. A. L. Romanoff, Ithaca, N. Y. (U. S. A.)
10. The Effects of Controlled Illumination on the Reproductive Activities of Birds of Prof. Dr. Wm. Rowan, Alberta (Canada).
11. The Virus Disease in the Domestic Poultry by Dr. J. R. Beach Berkeley, California (U. S. A.)
12. Infections Disease of Chickens and their Treatment by Prof. Dr. Miessner, Hannover (Germany).
13. The Importance of Poultry Diseases for the Controls of Victuals by Prof. Dr. Beller, Berlin (Germany).
14. A Comprehensive Breeding Program in Developing High Laying Strains by Dr. M. A. Jull, Washington (U. S. A.)
15. Genetics of Various Hereditary Ailments of Fowls and Rabbits compared with similar diseases of human beings (with film) by Prof. Dr. Nachtsheim, Berlin (Germany)
16. Pregnancy of the Rabbit by Prof. John Hammond, M.A., D.Sc., F.R.S., Cambridge (England)
17. Influence of oecological conditions on poultry breeding in Italy by Prof. ssa Anita Væchi (Italy)

The above-mentioned subjects show how thoroughly all questions will be discussed at the VIth World's Poultry Congress. The special technical apparatus of translation allows each visitor to follow the respective lecture in his own tongue.

The General Secretary's Office of the VIth World's Poultry Congress will be glad to give all further informations about the conditions of participation at VIth World's Poultry Congress. Letters to be sent to : Berlin W 9, Voss Str. 17.

To

THE EDITOR,

The Indian Veterinary Journal, Madras.

Dear Sir,

Please publish the following.

The undersigned requests the Graduates of Bihar and Orissa Veterinary College to be gracious enough to let him know of their where-about, as it is decided to institute an Old Boys' Association. Their early response with suggestions will very much be appreciated.

MAHAMMAD ATHAR KHAN, G.B. & O.V.C.,
Veterinary Assistant Surgeon,
c/o, Veterinary Hospital, Salon, Rae Bareli.

Extracts

BULLS FOR STUD PROPOSES

VICEROY'S GESTURE

Inspection of Animals To-day

Lord Linlithgow will inspect at the Viceregal stables to-day selected animals, which have been collected for him from Government Stud Farms at Hissar and Karnal. His Excellency proposes himself to purchase two bulls of good breed and make them available free of charges for stud purposes in Delhi and the neighbourhood.

Lord Linlithgow will himself pay for stalling and maintenance of bulls and for their attendants.

Arrangements are being made for a sound film to be taken during the course of inspection and His Excellency is likely to make a short address.

During the inspection Lord Linlithgow will be accompanied by the Director of Government Veterinary Institute at Muktesar, Mr. Ware, the Animal Husbandry Expert of the Imperial Council of Agricultural Research, Colonel Olver, and the Director of Veterinary Science and Cattle Breeding in the Punjab, Mr. Quirke.

The Hindu 22-4-36.

VICEROY'S GIFT TO DELHI

BULLS FOR STUD PURPOSES

Appeal to the country

Importance of Cattle-Breeding

One saw His Excellency the Viceroy to-day in a very different setting from the gorgeous display of splendour in the Durbar Hall, when he assumed charge of his high office on Saturday. No one was present, except a group of pressmen, cameramen and some members of his personal staff, the only outside officials being Colonel Olver, Animal Husbandry Expert, and Mr. Ware of the Muktesar Veterinary Research Institute.

We met in the Viceregal stables where two young bulls, one from Hissar and the other from Karnal, splendid specimens of Indian cattle, were waiting to be introduced by His Excellency himself, first to those present and then to the wider public in India, thanks to the enterprise of a sound film producing company.

Barely three years old the animals were, but they will travel in luxury in a motor van round the villages adjoining Delhi for breeding purposes and their progeny will be registered with a view to watching the results of the experiment.

Lord Linlithgow arrived soon after 5-15 and spent about 20 minutes personally attending to the smallest details, so as to produce a really good picture. The original intention was to bring both bulls into it, but one was too frisky to

go through the function with quiet dignity and "in the interests of my Private Secretary," said the Viceroy, he remained in the stable. The other was tolerably well-behaved, while the Viceroy read out his message to India.

Later, cameramen suggested to His Excellency to pose for a photograph with the bull but the self-willed animal dashed off in the direction of the Viceroy's House, with two men vainly trying to induce him to realise what privilege he was missing. Lord Linlithgow literally doubled with laughter at this strange sight, and though the cameramen lost their opportunity, one saw how abundantly human the new Viceroy is.

It is already clear that the Viceroy will not allow the grass to grow underneath his feet. He has busied himself with plans for giving a big push to cattle-breeding and dairy-farming. Nothing will please him better than that his example should be emulated by men of affluence all over India. Improvement of the breed of cattle and increase of milk and dairy products are matters in promoting which all can join, whatever differences in other spheres may separate them. The sight of the Viceroy affectionately patting his bull and pointing with pride to his straight back and loose skin, as evidence of his irreproachable pedigree, will move people to action as nothing else can.

To-day's quaint function in His Excellency's stables marks the beginning of a movement, which will greatly influence rural life in India.

Visit to stables

"My anxiety is not to talk about agricultural improvement, but bring it about", said H. E. Lord Linlithgow, in a brief address at the Viceregal Stables, where he inspected two bulls of unimpeachable pedigree, purchased for stud purposes in Delhi District.

The Viceroy wished that others would follow the example, and promised to write personally to any one who would do so. He had already completed a scheme which would be shortly announced. He would give another bull to the Delhi Pinjrapole.

The ceremony was brief, and His Excellency took very keen interest. A few minutes before the Viceroy arrived, Mr. Laithwaite, Private Secretary and Colonel Oliver, Animal Husbandry Expert of the Imperial Council of Agriculture Research, were present.

Answering pressmen assembled there, Colonel Oliver said that the age of each bull was two and a half years. One came from Karnal and the other from Hissar. Their progeny would be branded and registered, so as to carry on the work. Only the best cows, which gave large quantities of milk, would be selected for them.

Cameramen were busy taking snaps of bulls tied in stables, when Lord Linlithgow arrived and proceeded to inspect them. Followed by Mr. Laithwaite, His Excellency was approaching the bull from Hissar, when the animal grew very restive and looked scornfully as it were at Mr. Laithwaite. Lord Linlithgow remarked: "If this fellow is going to behave like this, we shall keep him here longer, for I won't allow my Private Secretary to be treated like this". But the Karnal bull was later found to be even more angry at the new surroundings and newer faces.

As soon as the Viceroy had concluded his speech and started patting him, the animal took to his heels, and it was some time before he could submit him, self to the discipline of his care-taker.

A sound film was taken of the inspection ceremony by the Bombay Talkies Limited.

Both the bulls will be taken round Delhi district in a lorry at Lord Linlithgow's cost and be available for stud purposes.

According to Col. Oliver, signs of good breed are straight back, good knees and arched ribs.

Viceroy's Appeal

On the occasion of inspection of the two bulls for stud purposes at the Viceregal Stables to-day, the Viceroy said:—

"In a moment, I shall take leave to introduce you to two friends of mine— young but distinguished and of unimpeachable origin. First of all, I want to tell you about a little plan of mine for helping the cultivators of the Delhi District. Even if you live in a city or town, I am sure you will appreciate that the cow and the working bullock have, on their patient back, the whole structure of Indian agriculture. They are the faithful assistants of the farmer. Without them, he can neither till his fields nor carry his crop to the market. His cow is the best doctor for himself and his wife, and above all, for his children. If you would see your children strong give the mother milk before your child is born, and while she is nursing your child later, and give the child all the milk it can consume. Again, what is the use of spending time and money in devising improved agricultural implements if the bullocks are too feeble to pull these better implements? Therefore, my friends, if you would help India, help the cultivator and one of the best ways to help the cultivator is to improve the breed of cattle all over the country.

"Now, I will tell you about my plan. I have bought two fine bulls, and I am going to make them available to the cultivators for breeding purposes. They will travel in a motor van, and thus be at the disposal of distant villages whenever required.

"Now let me introduce to you my two distinguished friends. See what noble animals they are! It is an honour for any man to caress such lovely creatures. Look at his skin, so fine and loose, showing high breeding, his fine head, his straight back, his shapely shoulder and strong quarters, his strong limbs, big bone, big knees and big hocks. As for milk, the mothers of these bulls have yielded over five thousand lbs., in a lactation period of less than 300 days.

"You will be interested to hear, I am sure, that I am providing a third bull. This I propose to present to the local Pinjrapole for breeding purposes.

"Now, my friends, may I say that I hope that other gentlemen may follow my example? They will make me very happy if they will do this, and their generosity will be of infinite value to the country. I shall certainly write a personal letter to any gentleman, who will support in this way my anxious desire not just to talk about agricultural improvement, but to effect it, (Hear-hear).—*Hindu* 23—4—36.

CATTLE-BREEDING.**SERVICES OF VICEROY'S BULLS.****Plans to raise pedigree stock.**

Arrangements have now been completed by the Animal Husbandry Expert, Imperial Council of Agricultural Research, in collaboration with the Director of Veterinary Services, Punjab, to put into operation in Delhi province a plan for improving cattle in India, which has recently been initiated by H. E. the Viceroy by the presentation of three pedigree Haryana bulls for improvement of cattle of villagers in vicinity of Delhi and at the Delhi Pinjrapole.

One of these bulls is to be located at the Nagloi Veterinary Hospital at Mahrauli and the third at the Delhi Pinjrapole. The bulls located at Nagloi and Mahrauli Hospitals will be maintained at His Excellency's expense and cared for by stockmen employed by the Delhi District Board and specially trained for such work. The bulls will be under the supervision of a Senior Veterinary Assistant Surgeon of Delhi Province and their services will be free but will be confined to selected cows of good Haryana type. Selected cows and their progeny by these bulls if approved by the Veterinary Staff, will be registered and suitably tattooed and the District Board will have the right to purchase any entire males they may require for breeding purposes within the Delhi District at a minimum price of Rs. 100 at two years age. All approved cows and their progeny by these bulls will be vaccinated against rinderpest free of cost and all the inferior males will be castrated.

The aims of His Excellency in presenting these bulls are firstly to give direct assistance to the cultivators in Delhi Province and secondly to encourage the adoption of similar measures in other parts of India for systematic improvement of livestock of all kinds by means of organised breeding control, combined with systematic castration and inoculation against disease, carried out by suitably organised provincial Animal Husbandry Departments. The most important part of all such livestock improvement measures, if they are to be of lasting value, is accurate registration of services and progeny of improved sires so that, in course of time, pedigree stock may become available all over the country which could be relied upon to produce high grade stock, suitable for the requirements of the localities concerned, but it must be recognised that without proper feeding and management, particularly of young stock, it is impossible to produce high grade animals of any kind. All over the world, well developed pedigree stock are of much greater value than stock whose breeding is not accurately recorded and His Excellency was particular that bulls of high class and pedigree should be purchased and that they should be permanently protected from rinderpest.

Immunity against Rinderpest.

In this connection the Viceroy was very interested to learn that as a result of research carried on for many years at the Imperial Institute of Veterinary Research, Muktesar, lasting immunity against rinderpest can now very easily be conferred on indigenous Indian cattle by means of vaccine obtained from goats which is so cheap, effective and free from danger, that already it has become the routine practice in all Government farms and by Provincial and State Veterinary Departments all over India both for control of outbreaks and for immunisation of indigenous stock. His Excellency was quick to realise that this new method of protection could be of utmost assistance in improving the cattle of the country and with the risk of death from rinderpest removed, it will now be pro-

fitable undertaking for breeders and owners to grow fodder crops and provide good feeding for breeding females and young stock all the year round so as to produce better cattle and thus reduce the excessive numbers which in the past were maintained largely as a result against loss from disease.

In presenting a bull to the Delhi Pinjrapole, His Excellency the Viceroy had a similar purpose in view. With particular regard to dairy cattle, at this institute, careful daily records of all yields are regularly maintained along with accurate registration of young stock produced and regular supply of bulls from good dairy strains of known origin should soon be available for breeding purposes in the vicinity. If as His Excellency hopes, wealthy zamindars and others follow his example by presenting and maintaining approved bulls for systematic improvement of cattle in their villages, it should be possible for a suitable organised Provincial Animal Husbandry Department to confer great benefit on the people of India at a relatively small expense, provided that they have at their disposal adequate numbers of suitably trained subordinate personnel for breeding control and registration of approved stock, combined with systematic and early castration of inferior males and inoculation against disease. Experience indicates that organised animal husbandry work along these lines would add greatly to the wealth of the country but to produce results of lasting value, it is essential that arrangements be made to carry on the work from generation to generation without a change of policy for rearing of high grade stock of well reorganised breeds.

Stud bull for Anantapur.

The President, District Board, the Agricultural Demonstrator and the Veterinary Surgeon, Anantapur, met in the District Board Office and decided to purchase a stud bull of Hallicar breed (Mysore) for Rs. 200. It is estimated that the annual cost of maintaining the bull will come to Rs. 250.

The Hindu 6—5—1936.

MILK ESSENTIAL FOR CHILDREN.

VICEROY'S PLEA.

Free Distribution by Simla Municipality

His Excellency the Marquis of Linlithgow, on return from the week-end stay at Mashobra, witnessed this morning the free distribution of milk by the Simla Municipality to undernourished children. The Municipality by means of grant-in-aid has provided for free supply of one pound of milk per day to each of 120 selected children. The Scheme will be continued for a period of at least three months,

Commending this scheme of free distribution of milk, His Excellency the Viceroy said :—

"Gentlemen, I am very glad indeed to have witnessed in person this morning the free distribution of milk to school children whose parents, because of slender means, would find it difficult, if not impossible themselves to supply their children with this most essential sustenance.

"I have studied with close attention the genesis and the detail of this most interesting and valuable scheme. As I understand it, the position is this. The Municipality, by means of a grant-in-aid from Municipal funds, has made provision for the supply, without charge to their parents, of a pound of milk per day

to each of 120 selected children. The scheme is in the nature of an experimental measure which was inaugurated on April 1, 1936, and which will be continued for a period of at least three months,

A Scientific Fact.

"It is a scientific fact beyond dispute that a liberal supply of milk is an essential constituent of diet for growing children, nor can there be the slightest doubt but that good nourishment in the earlier years of life is essential to the building up of a strong constitution in after life. Let me give you quite shortly the result of a very carefully conducted experiment carried out in my own country. This experiment showed that the addition of a pint of milk a day to the ordinary diet of growing boys converted an average annual gain in weight of 3'80 pounds per boy to one of no less than 6'98 pounds and increased the average gain in height of 1'84 inches to one of 2'63 inches. To my mind, one of the most valuable features of this experiment is the care with which the relevant records are being maintained. I do not know whether there is available a basis for comparison in the shape of the normal weight and height increase of children of the same age and class in this district who are dependent on the ordinary diet prevailing and who do not receive this liberal supply of milk. If these facts are not available, I venture to suggest that the deficiency should be supplied, for it is only by a comparison of this kind that the true merits of improved diet can be accurately assessed.

Irreparable Damage.

"I notice with extreme satisfaction that throughout India, there is growing recognition of the vital significance of human nutrition and in truth, it is impossible to overstate the importance of this sufficiency of diet to maintain the fullest activity of mind and body is an essential matter at every stage of life, but it is pertinent to notice the indisputable fact that it is the immature tissues of childhood and adolescence which are most prone to lasting and irreparable hurt as a consequence of malnutrition. That is one of the prime reasons that move me in my determination to do what I can to stress the immense importance to India of improving her cattle and to link up that campaign with the vital matter of milk as an absolute necessity of diet for the mother before and after the birth of her child and for the child during the early years of growth and development.

"Nourishment in the early life is not only essential for health but it is the foundation for health and its absence inflicts upon the growing organism damage which no subsequent condition can repair. What, indeed, is the use of spending public funds on objects, such as education, welfare schemes and the like if the people have not the health and vigour of mind and body to take full advantage of them and to enjoy them. What, indeed can we hope for from the political constitution unless we apply ourselves without delay and with persistence, vision and courage to the improvement of the physical constitution of the common run of men and women, for in truth the response of the individual to the opportunities of life whether economic, cultural or political is inevitably inadequate in the absence of that vigour and ambition and that of joy in life which belong to the possession of a healthy and balanced mind linked to a healthy body." "The Hindu", 26-5-36.

AGRICULTURAL RESEARCH**Work to be Reviewed**

The quinquennial review of the work of the Imperial Council of Agricultural Research is to be undertaken shortly, and the Government of India, it is understood, propose to secure the services of two British specialists to see how far advantage could be taken of modern advance in pure science in the development of Indian agriculture. Unless there is a kind of scientific stock-taking from time to time, the authorities appear to fear there is the possibility of some parts of the requirements being unattended to and others concentrated upon too much.

The experts (adds a Simla Associated Press message) will consider whether the existing schemes of research are proceeding on the correct lines and whether the programme of research is well-balanced and directed towards the filling of important lacunae in the research programmes of the Agricultural and Veterinary Departments. The foundation of the Imperial Council of Agricultural Research, seven years ago gave India an authoritative body for co-ordination and direction of agricultural and veterinary research and the proposed survey, reviewing the research programme of the Council in relation to the general position of agricultural and veterinary research, will pay due regard to the fact that the Council's function of co-ordinating research is as important as its function of encouraging and developing research.

It will be recalled that our Simla correspondent, in his despatch published in "The Hindu" on April 29 last, stated that two experts from England and one or two Indian assessors or Secretaries would review the working of the Imperial Council. Sir John Russell, Director of the Rothamstead Experimental Station at Harpenden, is likely to be one of the experts who will come out to India, while the other may be selected for his special knowledge of animal nutritional research.

The Hindu 6-5-36.

CATTLE-BREEDING PROBLEMS**Fodder Question**

(THE HINDU CORRESPONDENT, SIMLA).

It is possible that Colonel Olver, Animal Husbandry Expert, may find it necessary to visit some important centres of cattle-breeding in India and explain at first hand some of the difficulties connected with the development of the industry.

Another matter which may receive careful consideration is that of growing the right kinds and adequate quantities of fodder. Obviously, if cattle-breeding is to be undertaken seriously all over the country, whether for milch cattle or for draught purpose, the question of fodder must be tackled on an extensive scale and cultivation of fodder crops encouraged definitely as part of the agricultural policy.

Yet another aspect which is likely to engage official attention is the indiscriminate slaughter of milch cattle, which goes on in some of our biggest cities. The difficulty apparently is that many of our best cattle are sent to places like Bombay and Calcutta but cattle-owners find it impossible to maintain them when they run dry and sell them to butchers. Thus many valuable animals are lost.

The Hindu 12-5-36.

Raising "Dual Purpose" Stock

A note issued by the Imperial Council of Agricultural Research discusses the question of aiming at breeding of 'dual-purpose' cattle in India, which in addition to producing working bullocks, would also provide good milch animals.

In the so-called dual-purpose Shorthorn breed of cattle of the United Kingdom the combination desired was milk and beef and it must be clear that the biological problem involved in reaching this objective is not necessarily the same as would be involved in producing a type of animal suitable at once for milk production and for speed, power and endurance at work. To produce milk or beef economically, the animal must essentially be of a type capable of efficient conversion of vegetable food-stuffs into fat or muscle and fat, and whether the final product is to be beef or milk, the efficient producer must be of a placid, inactive type.

The type required by purchasers of work cattle in India is essentially different. What they demand is a virile active type capable of prolonged work at as fast a pace as is compatible with the load to be hauled. Indeed to obtain satisfactory returns from the livestock, in the sale ring or in competitive production, it is necessary to specialise for a particular purpose. Such specialisation may even take the form of cross-breeding, provided that only pure-breds are used on both sides. It is also necessary to have highly efficient milch strains in order to make dairy farming a paying proposition and to maintain stock of either kind at high levels of efficiency, it is essential that they shall breed true.

Right Policy for India

For India as a whole, where from time immemorial cattle have almost exclusively been bred for speed and working capacity, the right policy thus appears to be to continue to breed for work in the natural grazing areas where the development of a dairy industry on modern lines would not be feasible, and to breed strictly for the highest possible milk yields in special herds and in suitable areas, with the development of a dairy industry in view.

That in effect is what is being done on most Government farms, though in some cases with the avowed intention of breeding a dual purposes animal. There is however likely to be a constant drag on the wheels of progress unless definite milking and working types are bred for separately, in order that breeders can quickly achieve and maintain steady progress in one or the other direction, and so that cultivators can be assured of obtaining the services of high grade sires of the type they need. Incidentally the ordinary cultivator who only aims at producing general utility animals would be even better able to obtain them by mating his non-descript stock with high grade sires of one or other of these types than if bulls of only one type were available.

Experience has shown that to produce or maintain high grade stock it is essential to breed and feed constantly for the very best of a particular type, while it is easy to breed mediocre general utility animals not of the highest class in either direction. Usually too many of this type are produced even while breeding for a special type but those who want dairy-cum-work cattle will better be able to get them if high grade bulls of the two well developed types are available.

Milk Yields

Moreover to create a market which will enable high grade dairy stock to be produced and maintained—at greater expense than the ordinary breeder can afford—it is essential to establish official recording of milk yields and to publish

at least those of cows of high performance so that prospective purchasers may know the milking capacity of the stock available. This is a work in which wealthy Zamindars and others interested in the general welfare of the country might well follow the example set by His Excellency the Viceroy, who has presented two specially selected blood on the condition that they and their progeny shall be employed to the best advantage for the systematic improvement of the cattle of the local mufussil.

India possesses breeds of cattle which can comparatively easily be developed so as to more than hold their own with any others under tropical conditions, and the definition of breed characteristics, along with official registration of accredited stock of the best Indian breed of dairy cattle is now being undertaken by the Animal Husbandry Bureau of the Imperial Council of Agricultural Research, in order that systematic improvement and publication of records of these breeds may be carried out on scientific lines, based on progeny tests, pedigree and performance. To carry out work on these lines expert breeding on special farms is essential, but to enable India to make the most of her cattle, and indeed of her livestock of all kinds, throughout the country, what is most needed is gradually to build up an independent expert Animal Husbandry organisation, devoted solely to the interests of livestock and able to develop Animal Industry in all its many branches, on the lines which have been found necessary and very profitable in the most progressive livestock countries of the world :—*The Hindu* 11-5-36.

CATTLE-BREEDING.

The Viceroy's Interest

LETTER TO MADRAS GOVERNOR

Plans for Raising Pedigree Stock

The following letter dated Simla, 2nd June 1936, from His Excellency the Viceroy to his Excellency the Governor of Madras is released for general information :

As Your Excellency is aware, both in the course of my tour with the Royal Commission on Agriculture in India and in my own country, I have devoted a great deal of thought to the subject of livestock improvement, and I am most anxious to give any assistance which lies in my power to the development of cattle-breeding in India and the improvement of the fodder supply. I will not now trouble you with the latter question, but I am having it considered officially as I feel very strongly that there is no point in trying to improve the breed of cattle if the fodder is not there for their nourishment,

I recognize that much has already been attempted by Your Excellency's Government for the improvement of cattle-breeding and that more would have been done had financial conditions been more favourable. I am anxious now to initiate throughout India a sustained effort to attract that unofficial support and interest in live-stock improvement which is so essential to real progress in every country, and I should welcome your advice and that of your Minister in charge of Agriculture as to the methods by which this object can best be attained.

As Your Excellency is aware, shortly after assuming office I presented three stud bulls to the cultivators of the Delhi district and made a general appeal to persons of wealth and standing throughout the country to follow my example, and to give pedigree bulls to such institutions as modernised pinjrapoles, dairy farms, better Farming Societies and similar organizations of cultivators or to District and Local Boards, which will undertake to use them under specified conditions for stud purposes. I subsequently drew attention to the importance of certain points which are familiar to all those who have a practical acquaintance with the improvement of livestock, *viz.*, that the bulls should be chosen with great care and that the fullest possible advantage should be taken of the pedigree stock already available at Government Cattle-breeding Farms, that they should be of a breed suitable to the type of cow in the district concerned and that records should be kept of the progeny. I also suggested that there should be an option to purchase for breeding purposes the male progeny of the "gift" sires at a reasonable price, and that no effort should be spared to develop a "corps" of pedigree cattle with the object of improving the general standard of the stock of the district,

Definite Advantages

The appeal which I have made has had, I am glad to say, a certain result. I am in the first place greatly indebted for this to the press, who have given full publicity to my remarks, and who have throughout in many ways given me invaluable support. Another feature which has impressed me, in my examination of the gifts which I have received, or which in response to my appeal have been made direct to local institutions in the various Provinces, is that, broadly speaking, the response has come from the smaller landowners and from people of quite moderate means.

An arrangement on the lines referred to above, offers, in my view, certain definite advantages, and I should welcome any observation on it and any suggestions for its further development, with which Your Excellency and your Minister for Agriculture may care to favour me. The advantages of the arrangement are patent. It at once ensures an offtake at a reasonable price for pedigree male stock, whether produced by private breeders or on Government Farms and it should result in a mass effect on the general standard of the village cattle of the country, especially in villages outside the best breeding areas, whilst the dedication of the best male stock for breeding purposes is in accordance with ancient traditions. If as I trust Your Excellency and your Government share my view on this subject, I should be grateful if you would take such steps as are practicable and desirable to encourage in your province a campaign on the lines I suggest. I have no doubt that you will enlist the co-operation of the press, and I venture to suggest for Your Excellency's consideration that you might see advantage in communicating my present letter, either as a whole or in part, to the English and vernacular papers in your province.

I am fully alive to the importance of enlisting the assistance of District Officers in bringing this subject as a whole, and the specific arrangements I propose, prominently to the notice of the landowners of the country. It has also been suggested to me that, in some Provinces at any rate, it may be possible for the Court of Wards to set an example to the other landlords of the province as they have already done in the introduction of improved seed and other important agricultural improvement.

Expert Advice

I should be grateful if you would let me know at the end of three months what response there has been to my appeal and if you will send me a list of the donors and of the sums of money or the number of bulls which they have given. I have arranged separately for Colonel Olver, the Animal Husbandry Expert of the Imperial Council of Agricultural Research, to give every possible assistance to those Provinces which desire it, especially in the matter of co-ordinating the efforts which are being made and in achieving a systematic basis of selection and maintenance of the bulls purchased or presented. The Imperial Council of Agricultural Research is also circulating to all Local Governments and to those Indian States which are represented on the Council a note on this subject which may be found of use.

Your Excellency may rest assured that I will spare no effort during my period of office to advance, so far as in me lies, the interests of the agriculturist and the welfare of the rural areas. And I would like to say, in closing my present appeal, that there is no way that I can think of in which greater help can be given to the Indian countryside, and to the future of Indian agriculture, than action on the lines I now suggest. It is my earnest hope that the response to that appeal will be both generous and widespread.—*The Hindu* 15-6-36,

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"I am anxious now to initiate throughout India a sustained effort to attract that unofficial support and interest in 'livestock improvement which is so essential to real progress in every country', states Lord Linlithgow, in his letter to the Governor of Madras, now released for publication. The letter bears ample testimony to the Viceroy's genuine desire to improve animal husbandry in this country. He is eager to infect the Provincial Governments with his own enthusiasm for cattle breeding. His appeal (accompanied by his own example) has met with immediate response in the country. People are beginning to take a new interest in cattle-breeding. It cannot, however, be said that as yet there is any organised movement for the improvement of livestock. There is a large amount of apathy that has to be overcome. As Col. Olver, Animal Husbandry Expert of the Imperial Council of Agricultural Research, pointed out the other day, "Indian backwardness in the development of her huge livestock resources is very largely due to the apathy of the people." But why is there such profound apathy? Why does the ryot, who is already poverty-stricken, neglect his cattle, when he should know that by looking after them properly he can increase his meagre income? The reason is to be sought in the sense of helplessness and fatalism that fills the ryot. Weighed down by the burden of interest and land-tax, victim of a capricious rainfall, and entangled in a price economy which is baffling him, the Indian ryot feels that his best efforts are of no avail to improve his lot. It is not enough to suggest to him that he should improve his cattle. Lord Linlithgow, in his passion for cattle-breeding, will not, we dare say, ignore the fact that the Indian ryot needs help in other ways than the improvement of the quality of his cattle. His Excellency's present well-meant efforts to improve the country's livestock will not be assured of the success they deserve unless they are made part of a comprehensive campaign to lift the agriculturist out of his poverty and apathy,—*Leaderette, The Hindu* 15-6-36.

DEVELOPMENT OF AGRICULTURE.

TRAVANCORE BOARD'S PROPOSALS.

Need for Central farm for Experiments.

The sittings of the Travancore Agricultural Board which commenced on Monday came to a close last evening. A heavy agenda was gone through. The various Sub-Committees appointed to report on specific subjects submitted their reports and they were adopted with changes of minor consequence.

Livestock

Mr. P. K. Ramakrishnan Tampi, Veterinary Superintendent, read a report on the work done for the improvement of live stock in the State. Climatic conditions in Malabar were not very favourable for the breeding of cattle. Feeding of cattle was difficult both during the wet and the hot seasons and increase in number of cattle had resulted in deterioration. Various bulls from outside had to be imported for improving local bulls. The Sindhi variety was found to be the most successful and the Department had sold as many as 150 pure bred Sindhi calves to ryots. He suggested that new varieties of bulls in larger numbers be maintained and greater propaganda be carried out and fodder crops cultivated.

Cattle farm

Resolved :—

That a central cattle farm be opened at Trivandrum.

That the grants for stud bulls be increased.

That as considerable difficulty and hardship was being experienced by the agriculturists of Kuttanad in protecting their cattle from frequent and devastating floods, sufficient grounds raised above the highest flood level be provided at suitable centres.

That the propaganda Staff of the Department be strengthened and additional facilities be given.

That the Agricultural Schools at Kottarakara and Koni be made permanent and that the standard of education imparted therein be raised.

That the two existing veterinary dispensaries at Neyyatincara and Parur be converted to veterinary hospitals. That a duly qualified veterinarian be appointed to be in charge of the Chemical Laboratory newly sanctioned for the veterinary section.

That quarantine stations be established to prevent importations of animals affected with contagious and infectious diseases.—*The Hindu* 24—5—36.

ARMY VETERINARY CORPS.

Not Enough Indian Entrants

That the response has been disappointing is the feeling at Army Headquarters regarding the attractive careers which were opened to Indians as Commissioned Officers of the Indian Army Veterinary Corps,

What the authorities here do not understand is why Indian parents continue to send boys to England for more expensive training in the already overcrowded medical profession, whereas at a cost of £2,000 the Indian boy who does five years at a college in London, Liverpool, or Edinburgh and obtains a diploma of M. R. C. V. S., can either secure a place in the Army or civil employment or establish private practice.

There are three vacancies now and 15 more will occur in the next five years. There are not enough Indians studying in England to fill them. Altogether, there will be 37 vacancies between now and 1946 and 11 more between 1946 and 1956. The Government, inaugurating the scheme of Indianisation, thought it would be completed in 20 years, but if the response remains disappointing, longer time will be taken.

Provincial Governments have been asked to improve their veterinary education standard and the question of postgraduate study by eliminating a year or two of the course in England is also being examined. At present the minimum qualification for service can be obtained only by study in the British Isles.—*The Hindu* 9—6—36,

AUTHORITIES' COMPLAINT

Qualified Indians not Available

BY

THE HINDU CORRESPONDENT, SIMLA.

The somewhat outspoken criticisms on the floor of the Assembly about the failure to Indianise even the Indian Army Veterinary Corps have had some effects apparently, for it is proposed, I hear, to inaugurate that policy; and if all goes well, in twenty years time, there will be a completely Indianised cadre consisting of 60 Indian officers in that Corps.

But all, it seems, is not going well because the response from Indians is considered disappointing to the very attractive careers thrown open to them as a result of the Secretary of State's decision in favour of Indianisation. Incredible as it sounds, for four vacancies only three applications have been received from competent Indians. The Army authorities insist on membership of the Royal College of Veterinary Science as the minimum qualification for admission to the Veterinary Corps which means a five years' course in the U. K. and an expense of about £. 2,000. One does not know whether Indian students have sought admission into one of these institutions in Great Britain in sufficient numbers or found the expense a prohibitive item. After all, it is admitted that the possibilities in India of private practice for highly qualified veterinary men are not such as to attract a large number. It seems the question of reducing the period of stay in England for men who have already undergone some training in this country is under consideration and if the authorities of the veterinary educational institutions in Britain prove sympathetic, reduction of the period will mean considerable saving for Indian students.

But a more obvious and more desirable solution of the problem to which Army authorities have drawn attention, namely inadequacy of facilities for veterinary education in India can be solved only by Provincial Governments taking

steps to improve the quality of education upto the requisite standards. It seems the difficulty is that Provincial Governments have not shown sufficient interest with the result that veterinary educational standards continue to be deplorably low. It is not every province that has a veterinary college and in fact, Madras, Bombay, Bengal and the Punjab alone can boast of such institutions. Perhaps one should be grateful to the Army authorities for drawing forcible attention to this aspect of the matter and it does seem almost a scandal that India cannot produce three young men per year to take their places in the Army Veterinary Corps.

Blaming the Provinces

The Government of India are fast developing the habit of complaining that provinces do not co-operate in many directions. "Veterinary education being a provincial transferred subject, we can do nothing," is a convenient plea. But it does not sound convincing with the Imperial Council of Agricultural Research directly under the Central Government and the proposal actually under consideration for strengthening the staff of the Imperial Veterinary Research Institute at Muktesar and another about to materialise for the establishment of an animal nutrition institute at Bareilly. I have heard that research work done at Muktesar has achieved just reputation all over the British Empire and the Institute is regarded one of the finest of its kind in the world. If the Government of India seriously feel that veterinary education in this country deserves improvement, their own institutions in Muktesar and Bareilly can, with suitable expansion, undertake to supply a need which provinces, crippled by lack of funds, cannot for the present at any rate. But this attitude of blaming the provinces for every thing is neither helpful nor just.

One of the difficulties seems to be that the position of the Imperial Council is not very clearly defined. Its activities have grown considerably, but it is only an advisory body and a mere adjunct of the Department of Education, Health and Lands with no administrative jurisdiction. Occasionally one hears of the suggestion of a Board of Scientific Research with agricultural, industrial, medical and public health research all brought under one central direction and possibly it will be revived when the question of redistribution of portfolios crops up as it is bound to next year. Also one cannot say how the activities of the Imperial Council will be modified or expanded after they had been reviewed by two British experts who are expected next cold weather. Sir John Russell will be able to come out and possibly another may be selected, if he cannot undertake the task. But whoever comes, their report will make some difference in the future of the Imperial Council. One of these experts will, it seems, be a specialist in dairying and animal husbandry. Whether their enquiry will extend so far as to include conditions of veterinary education in this country I do not know. But they will do some touring and see for themselves the working of research schemes in the various provinces financed by the Imperial Council. No province apparently has thought of asking whether they will advise them with regard to these problems and, of course, the Government of India do not propose to extend their field of enquiry.

Even to a circular about secondary education, very few provinces have, so far one learns, sent a reply. Wherever the blame may be, it seems a great pity that no one seems to take responsibility for raising the standard of veterinary

education in this country and while the Army authorities condemn the existing institutions as unsatisfactory and the civil administration complains about provinces being unresponsive, the Imperial Council of Agricultural Research languishes without proper status. *The Hindu* 10--6--36.

WHAT THE SERVICE OFFERS

(Associated Press).

That the response has been disappointing is the feeling at Army Headquarters regarding the attractive careers which were opened to Indians as Commissioned Officers of the Indian Army Veterinary Corps.

What the authorities here do not understand is why Indian parents continue to send boys to England for more expensive training in the already overcrowded medical profession, whereas at a cost of £2,000 the Indian boy who does five years at a college in London, Liverpool, or Edinburgh and obtains a diploma of M. R. C. V. S. can either secure a place in the Army or civil employment or establish private practice. Provincial Governments have been asked to improve their veterinary education standard and the question of postgraduate study by eliminating a year or two of the course in England is also being examined. At present the minimum qualification for service can be obtained only by study in the British Isles.

At present there is veterinary training in Madras, Bombay, Bihar and Bengal where courses are for three years. Lahore is the only exception with a five year course.

Twelve Indians have already got commissions after five years courses in colleges mostly in London. The age limit of 28 as condition precedent to admission as candidate could not be raised as the Army must have young men with active habits. No difficulty so far has been experienced by those who applied for admission to recognised colleges in British Isles and every one of them has been absorbed in the service. At any rate, none had complained of not having been so absorbed. Still there was paucity in the number proceeding for training to the British Isles.

Until two years ago, there were two classes of officers, one consisting entirely of British officers of the British Army who came out to India on a five-year visit and the other consisting of British officers who had been transferred to the Indian Army, spending all their time in India. In the former category there were 42 officers and in the latter category 22 officers. But with the institution of the Indianisation scheme in January, 1935, their object was to reduce the number of British officers to that actually required for the needs of the British units (which meant reduction from 42 to 37) and secondly to abolish the continuous Indian service cadre and replace it by 60 Indian Commissioned Officers in 20 years' time. This figure of 60 has been made up by reducing the number of Veterinary Assistant Surgeons from 123 to 94.

Pay

According to latest reports from veterinary colleges in the British Isles, there is insufficient number of Indian candidates studying there to meet the needs of service in India. For appointment as an Indian Commissioned Officer the

minimum qualification is the diploma of Member of the Royal College of Veterinary Science. When this was obtained there was perfect equality between Indian and British Officers in-service. The rate of pay for Lieutenant is Rs. 440, Captain Rs. 495 to Rs. 715 and that for the higher ranks *pro rata* not yet fixed. The main responsibility of the Corps in the welfare of the 70,000 animal of the Army. The majority of officers are employed in veterinary Hospitals some in remount depots and breeding areas and others on the administrative and research side.

While for the majority, life is one of constant activity and there is no place for the lethargic in the Corps, there is place for the very studious on the research side. Indeed, the Army claims to have made its contribution to the cure of the Surra disease, which proved fatal to camels. Now it can be diagnosed in the incipient stage and the incidence of the disease was reduced during the last war on the frontier from 60 to 70 per cent to 1 per cent. Similarly, in the matter of cattle pestilence and rinderpest disease, Army and Civil authorities, had co-operated successfully to the great benefit of peasants of India.

Those who obtain a veterinary diploma and fail to secure a place in the Army may obtain Government and private employment or set up private practice though hitherto private practitioners have not been quite successful in getting enough clients except in Calcutta and Bombay. There are no scholarships offered for the deserving student except that in one case such help was given from the Silver Wedding Fund. Army authorities hope that at least in the near future; there will be not only more encouraging response for training for veterinary course but also improvement in the standard of training obtainable in the provinces.

—*The Hindu* 16-6-36,

The decision of the Government of India to Indianise the Indian Army Veterinary Corps is a welcome though belated step. It would appear that the difficulty in pushing through this reform is not the unwillingness of the Army authorities to encourage Indian talent, but the lack of qualified material. For four vacancies to fill which the Government advertised for candidates, we are told, they got only three applicants with the requisite minimum qualifications. It is true that the facilities available for veterinary education in India are not adequate and that in many provinces, as the Royal Commission on Indian Agriculture has pointed out, the standards of instruction and training are inadequate. We are nevertheless loath to believe that all the veterinary colleges put together in India could not provide four youths sufficiently qualified to deserve admission to the Army Veterinary Corps. The training given in some of the Colleges has considerably improved and every day further improvements are being effected. That certainly is the case in Madras, whatever may be the state of things in other Provinces. If, however, the conditions require further improvement, the Government of India must take steps to secure that end. There is no use blaming the Provincial Governments in respect of a matter—the Indianisation of the Veterinary Corps—for which they are primarily responsible. We do not doubt that if the Government of India will only offer their co-operation to the Provinces where the standards of veterinary education are sufficiently advanced, the Provincial Governments concerned will gladly take steps further to raise the standards and bring them up to the level of those of the most efficient of the institutions in the Empire. There was a time when Indian youths had to be encouraged into taking to veterinary education by the offer of stipends during the period of training, but now conditions have changed. Although students are now willing to pay tuition fees, admission to the institution has had to be refused to many qualified

youths. The fact shows that it is not difficult to secure suitable persons to enter the profession if it is widely made known that satisfactory openings are available to veterinarians in the Army if they qualify themselves for appointments to the Veterinary Corps,—*Leaderette: The Hindu* 16—6—36.

RELIEF FOR SICK ANIMALS

Dispensary Opened At Tiruturaipundi

Before a large gathering, last evening, the hon'ble Mr. P. T. Rajan declared open a Veterinary Dispensary on the Vedaranyam road, at Tiruthuraipundi and in the course of his address made a reference to the policy of the Government in regard to expenditure for veterinary relief.

The Minister and other guests were received at the entrance by the District Veterinary Officer.

The meeting which began with a group photo was presided over by Mr. N. R. Samiappa, President of the East Tanjore District Board.

Mr. Swaminathan, District Veterinary Officer, in a short account, referred to the Linlithgow Commission Report and said that as far as the Tanjore district was concerned the rinderpest might be said to be non-existent. While the mortality from this disease in 1929-30 was 12,294, the deaths in the year 1935-36 were only *twenty*. This striking reduction in the mortality of this disease had been effected by the intensive preventive inoculation and also by prompt attention to outbreak reports. Since 1929-30, nearly 50,000 cattle had been protected against this disease alone.

The President referred to the urgent need for a veterinary dispensary and thanked the government for opening a dispensary at Shiyali and one at Tiruthuraipundi in the course of a few months. He said that it was his ambition to open a veterinary hospital at Tiruthuraipundi and the East Tanjore District Board would not have stinted to sanction even a larger contribution if it were necessary to enable the instruction to take the shape of a hospital. He however, hoped that ere long the dispensary would expand into an hospital.

He added that a new era had dawned for the ryots and agriculturists with the advent of the new viceroy, whose intimate knowledge and deep interest in the agricultural problems of India were only too well known.

Mr. P. T. Rajan

The hon'ble Mr. Rajan in declaring the Dispensary open, stated that till the year 1930—31, it had been the policy of the Government to open six dispensaries and allow twelve touring billets every year for the province, the ultimate aim being that every taluk in this presidency should have a dispensary and that every taluk should have a touring Veterinary Assistant Surgeon. Unfortunately when the depression set in, the committee which went into the question of making the budget a balanced one, stated that the programme should be kept in abeyance and that in case dispensaries were to be opened, contributions should come either from the local bodies or municipal councils or from leading ryots who would benefit by the existence of such institutions. He had to acquiesce in that proposal as there was no alternative. But in the case of touring billets, they tried to keep the

number of men to the extent of twelve or ten as the case was, at least half a dozen a year. Taking advantage of the recommendations of the retrenchment committee, Mr. Samiappa Mudaliar, the speaker went on, as soon as he was elected President of the East Tanjore District Board, approached the Government saying that he was willing to give Government a portion of the expenses for opening a dispensary at Shiyali. When the District Board and its representative namely the President, had come forward in this fashion, he felt they should encourage them. Accordingly the dispensary at Shiyali was opened. When a similar request was made for the opening of this dispensary and a similar promise of contribution was made, the Government agreed there again. The result was that from that day forwards the people would have the facilities near at hand of giving the necessary relief to their cattle and get this dispensary's assistance. It is needless for him to say how important it was to have a healthy breed of cattle for a country chiefly agricultural in character.

Only recently His Excellency the Viceroy in his speech pointed out the necessity for a proper breed of live-stock which would on the one hand give the necessary stimulus to agriculture and on the other hand give a supply of pure milk to the children. It had been the policy of the Government as far as possible to control the various diseases ravaging the livestock of this presidency.

Work in the Tanjore Dt.

As far as the Tanjore District was concerned, the hon. Minister observed, rinderpest considered to be the most dreaded of all livestock scourges, was practically non-existent now in this District though the ravages elsewhere have been enormous. It had been due to the intensive work done by the department by preventive inoculation and by prompt attention to outbreaks of diseases. Mr. Samiappa Mudaliar referred in his speech that the advent of the present Viceroy was indicative of better times for the agriculturists of this country. He, the speaker, agreed with him. As a matter of fact, the Government of India by the establishment of the Imperial Council of Agricultural Research, had been helping the provinces with the necessary funds in carrying out a number of useful research schemes and with the advent of the Viceroy, the speaker was quite sure a fillip would be given to this Department which was concerned very much with the welfare of the ryots. In connection with the enquiry, rather the consideration of different items by the sub-committee of the Provincial Economy Department, the Government had asked the committee to draw up a scheme with a view to improving the livestock of this Province, and he hoped it would be possible when the time came to give effect to it.

Madras, Mr. Rajan continued, had taken a hint and given the lead. Only two days back, when he paid a visit to Coimbatore in connection with the re-opening of the Summer School of Rural Service, the Chairman of the Municipal Council presented, rather promised, a bull to the Y.M.C.A. Centre at Ramanathapuram and on the next day, the Chairman of the Tirupur Municipal Council said that he would afford facilities to the people within his municipal limits and set apart funds to meet the expenses for this purpose. This promise had been unfortunately mis-reported in the press. There was no promise on his part to present the bull to the Y.M.C.A. Centre at Ramanathapuram, but his proposal was that he would keep it in his own stables and give the necessary service. And to-day he was glad to say and it gave him great pleasure to announce to them that their President Mr. N. R. Samiappa Mudaliar had offered to present a bull and

keep it at his expense for a period of two years. Now they were having a dispensary which would give relief to the dumb cattle and at the same time, people would have the facilities of having the services of a stud-bull in this dispensary.

Mr. Samiappa Mudaliar and the District Veterinary Officer in a short speech thanked the hon'ble the Minister and said they hoped that the public would take advantage of the institution which had fulfilled a long-felt want.

The Hindu, 3-5-36.

STUD-BULLS.

Breeds suitable for each district.

In connection with the Viceroy's appeal to men of wealth and position in the country to present stud bulls to institutions and Associations that are prepared and qualified to maintain them, the Development Department have obtained a statement as to the breed of bulls suitable for stud purposes in each district for the information of the people concerned. It runs as follows :

Vizagapatam: Ongole bulls of the Vizagapatam type,
Godavari East and West : Ongole bulls and Delhi buffaloes,
Kistna and Guntur : Ongole bulls.
Nellore and Cuddapa : Ongole and Scindhi bulls and Delhi buffaloes.
Chingelput : Ongole and Kangayam bulls,
North Arcot and South Arcot : Kangayam bulls.
Chittoor : Halliker and Kangayam bulls.
Anantapur : Halliker bulls.
Bellary and Kurnool : Halliker and Ongole bulls.
Trichinopoly, Salem and South Coimbatore : Kangayam bulls,
Tanjore : Kangayam bulls and local-breed.
Madura, Ramnad and Tinnevely : Kangayam or Scindhi bulls,
North Coimbatore : Halliker, Burghur hill-breed and Kangayam bulls.
Malabar and South Canara : Schindhi bulls.—

The Hindu, Dated July 4th 1936.

Reviews.

Annual Report of the Civil Veterinary Department, United Provinces, for 1934-'35.

Khan Bahadur Shaikh Niaz Mohammed was the Director for the first three months and Mr. T. J. Egan was the Director for the rest of the year, as the former retired on the 1st July 1934. There were three Superintendents and one Veterinary Investigation Officer. The subordinate staff consisted of 17 Inspectors, 1 Overseer and 201 Veterinary Assistant Surgeons. The Veterinary Investigation Officer confined his attention almost entirely to the control of Rinderpest with the use of blood and tissue antigen. He also made a general survey of cattle diseases in one district, carried out experiments on the treatment of Poultry at the Research Station Lucknow, conducted work on the treatment of Surra in different centres, worked on Bovine contagious abortion, and made a research into Joint-ill in young calves in the different breeding centres of the Province. The preparation of tissue vaccine against Rinderpest was started under his supervision at the Central Laboratory at Lucknow. The Subordinate staff delivered 450 lectures in different schools, Co-operative Societies and other places, on Veterinary subjects. A number of Inspectors and Assistant Surgeons received Practical training in the technique of blood and tissue virus methods of inoculation against Rinderpest.

The report records with gratification that the year was a comparatively healthy one for stock owing to good monsoon, rains, grazing and plentiful supply of fodder which rendered the stock less susceptible to disease. The losses from Rinderpest were considerably less during the year. Tissue vaccine was introduced against this disease. The several phases of this work are still under systematic investigation. "Its prophylactic and disease controlling potentialities have furnished a valuable biological product and a step further in the control of Rinderpest, a problem of immense importance to livestock owners in a country practically saturated with animal disease". 1,45,422 animals were inoculated against Rinderpest as follows.—Serum-alone method 1,12,377, Serum-Simultaneous method 699, Goat-Virus 11,786 and tissue virus method 20,560 animals. There were 1375 outbreaks in which 15,078 animals died as against 40,450 animals in the previous year.

Haemorrhagic Septicaemia claimed 8,469 deaths as against 8,270 in the previous year. 67,351 animals were inoculated against this disease as against 46,653 in the previous year. In addition to this 7,548 were immunised with Haemorrhagic Septicaemia Vaccine. The Department intends to adopt this method of immunization on an extensive scale in future owing to the prolonged immunity conferred by this method.

2,075 bovines died of Anthrax as against 924 in the previous year. Liver-fluke, Pleuro-Pneumonia, etc., claimed 255 deaths among bovines.

One case of Glanders and one of Farcy were detected and destroyed. 329 Equines received treatment for Surra; 30 of them died in the course of treatment and 8 after having been treated were discharged. All these were cases in advance stages when treatment was begun—Paraplegia and Paralysis having set in. The report confirms the experience of others that the diagnosis and treatment, in the early periods are very important. 6 Deaths from this occurred before treatment was adopted.

Piroplasmosis, Strangles, Tetanus, Cirrhosis and other parasitic diseases were responsible for 78 deaths among equines.

Under non-contagious diseases, the cases treated in the Veterinary Institutions increased to 409, 887 during the year from 379, 661 in the previous year. Cases supplied with medicines also increased from 57,038 to 63,628. The cases treated by the Veterinary Surgeons on tour increased from 95,023 to 141,650 and the castrations performed rose from 72,850 to 83,799.

There were only 4 cases of cattle poisoning reported. The number of Veterinary Institutions rose to 178 from 173. The three laboratories—Agra, Lucknow and Allahabad examined 1150 smears as against 758 in the previous year. 9 Cases incontacts were successfully given Anti Rabic treatment. The U.P. Poultry Association suffered heavy losses from an obscure disease which caused high mortality among young chicks. The comparative study and investigation revealed the etiological factor to be in the nature of gross Helmenthic infection. Experimental treatment undertaken for the first time in the country to test the value of Colloidal Iodine has given highly encouraging results as Vermicides. Further experiment with this drug is being conducted. A few cases of Ringworm in Poultry, known as "Favus" which is a rapidly spreading infection caused by a type of fungus known as "*Achroian Gallenae*" were diagnosed and experimental treatment was conducted with encouraging results.

"Sero diagnostic tests carried out in Connection with goat abortion in Gowshala and a Goat Breeding Farm, have presented some striking results. The findings besides being presentments of a serious cattle menace, have an important significance from the public health point of view. *Brucella melitensis* and *Brucella abortus bang* are responsible for the causation of Malta Fever and Undulant Fever respectively in human-beings". Further investigation is going on.

"Abijon" a milk product manufactured by Saxon Serum-Works Limited, Dresden, and supplied in 2 c.c., 5 c.c. and 10 c.c. ampoules was injected intramuscularly with certain amount of success in canine eczema.

The Department is in charge of breeding operations also. There were 56 Stallions and 9 Jacks at the end of the year, the average coverings being 37.5 and 37.6 per horse stallion and donkey stallion respectively.

There were 23 cattle and Horse Fairs and Shows held during the year. They were held by the officers in the subordinate Departments. The local arrangements for control and check of contagious diseases at these Fairs seem to be far from satisfactory as yet with the result they prove a common source of spreading diseases.

Veterinary Exhibits were displayed at numerous District and other Exhibitions and the public were very much interested in them. The report says that the propaganda work advocating the usefulness of the Department's activities is poor, because of the want of equipment of the necessary modern means of educating the rural population. It is hoped that the Government and the Local Bodies would make ample provision for this important work. The total cost of the Department was Rs. 4,12,101 during the year as against Rs. 4,14,918 in the previous year. We agree with the report when it says that the Department lost an energetic and experienced officer by the retirement of Khan Bahadur Shaikh Niaz Mohammed, who through his zeal and devotion served the Department with a very creditable record. We are however glad that he would be still available to serve the country and the profession even in his retirement from the Government Service.

8 Sannads were awarded for help received in carrying out the operations of the Department during the year. We commend this step to the heads of Veterinary Departments in other Provinces as it would be a stimulus to influential persons to render help in the difficult task of Veterinarians.

The report as usual contains many tables giving figures in detail under several heads and it is a good record of solid work.

Annual Administration Report of the Madras Civil Veterinary Department for the year 1934-'35.

We quite agree with the Government when it says in its review of the report that it is a record of another year's interesting and effective work by the Department, whose services, it is gratifying to note, appear to be in steadily increasing demand. In its concluding paragraph the Director of Veterinary Services is requested to include in future a paragraph in the report describing the *professional* work done by the District Veterinary Officers. (The italics is ours). This is a move in the right direction. The Government further wants in future, information regarding the number of inoculations performed by the Circle Officers *themselves* and of those performed under their supervision and checked by them. (The italics is again ours). It is really very desirable that those Officers should devote their time and energy more to the professional work than to the office routine.

Mr. P. T. Saunders continued to be the Director of the Department. Out of the three Indian Veterinary Service Officers, one died (Mr. V. Krishnamoorthy Aiyar, G.M.V.C., I.V.S.) on 18th October 1934. Consequently at the end of the year there were only two Officers of this class. There were twelve District Veterinary Officers in charge of the twelve circles in the Presidency. Besides, there were ten Provincial Service Officers, namely, seven as Lecturers in the Madras Veterinary College, one as Superintendent at the Madras Serum Institute, one as Inspector of Livestock, Forest Department, and one as Veterinary Investigation Officer. There were no additions to this number during the year.

The subordinate staff rose from 268 to 274 and it was distributed as follows:— 105 Touring, 112 in charge of Institutions, 32 Leave reserve, 1 attached to the Head Office, 11 employed in the College, 7 in the Serum Institute, 3 in the Agricultural Department, 1 with the Veterinary Investigation Officer and 1 on Export duty.

Ample facilities have been provided for the students in the College to gain practical experience in the several subjects. Though the Selection Committee selected 22 students (including the 2 in the waiting list) from the Madras Presidency and Coorg, only 18 joined the college and again 2 of them resigned their seats. 30 seats have been fixed up for the students from the Presidency and Coorg. The number of students actually that continued in the first year class was really only one more than half of the strength allowed for the Presidency and 6 less than the number selected. The report does not mention the number of applications received for admission during the year. It would have also thrown some useful light on the subject. The report does not disclose the cause or causes which have tended towards this state of things. We eagerly look forward for this information in the report under preparation.

Three Scholarships were awarded during the year and probably these were given to students newly admitted. The report says the fourth Scholarship was not awarded for want of a candidate belonging to the prescribed communities.

Out of 41 who appeared for the Diploma Examination 30 came out successful. The report makes no mention as to how the Graduates of the previous year have been employed. Generally this information is to be found in the reports of the professional Colleges. However 60 per cent. of the students have passed out successfully in all the classes. We congratulate the students and the College Authorities.

The Hospital attached to the College treated 6,883 cases as against 5,909 in the previous year. The average daily attendance also rose from 89.9 to 91.93. The Royapuram Dispensary has been gaining popularity and now a whole time Veterinary Assistant Surgeon is in its charge. The Shoeing Forge attached to the College gives the students instruction in scientific shoeing and its work has also increased. Under "Laboratory" the report gives as much interesting and instructive information under several heads in each of the sections. The work has also considerably increased in all these sections. We would highly commend a perusal of this portion of the report.

The Serum Institute has also a good record of work to its credit. Besides the manufacturing of Rinderpest Serum and Virus, both Goat and Bull, it has done considerable scientific investigation in connection with many diseases, especially of parasitic variety. There was a considerable fall in the demand and supply of Anti-Rinderpest Serum due to the low incidence of this disease in the presidency. Both Mysore and Madras which started their own Serum Institutes have been able to reduce the incidence of Rinderpest in their areas with the help of the prompt supply of Serum and Virus in the required quantities. An extensive use of Goat-Virus vaccination may further reduce the demand of serum and bull virus, but as the report rightly indicates, there are other diseases such as Haemorrhagic Septicaemia and Black Quarter which take away a large toll of animal life and they therefore demand the starting of equally intensive campaign of protective inoculations on a large scale. Sera and Vaccine coming from distant Himalayan regions are neither economical nor copious in supply. The Madras Serum Institute rightly feels that it should undertake the manufacture of these products as well.

Under Veterinary Disease Investigation, we find Black Quarter is the main disease taken on hand during the year, the preliminary investigations with regard to some of the bacterial virus, Protozoan, Fungoid, Parasitic and Deficiency diseases were also undertaken. Investigation under 'poisoning' has also been included in the programme. The details of the work done by the Veterinary Investigation Officer do not find a place in the report under review, but they have been submitted in a separate report to the Government. The profession keenly awaits the publication of this report.

Research work on Pseudo-fowl-pest was continued in the College Laboratory, but the results obtained were not so far encouraging. So also was the case with the treatment of animals with urine hormone from pregnant cows.

Parasitology Section continued its research work on Nasal Schistosomiasis and did some work on other useful items. Interesting anatomical findings were also recorded in the report. It is not possible to do justice to all these items in a short review like this.

The fall in the incidence of all contagious diseases of cattle continued during the year, the total deaths being 26,733 as against 31,774 in the previous year. The District Veterinary Officers were requested to devote greater attention to the outbreak reports and mortality figures, and to rectify discrepancies whenever noticed. We are also told as a result of this it was found necessary to reprint 91

cases in which Village Munsiffs were noticed to be slack. Nothing is said if any attempt was made to train the village officers and the clerks concerned in the compiling of these returns in the matter of correct classification of the several diseases. Firka Conferences and training camps will be of great use to train up the village officers in the maintenance of these statistics.

Mortality from Rinderpest came down to 3243 from 5209 in the previous year. 115,130 inoculations were done by S. S. method. Of these 67,846 were done in free areas. By Goat-virus method 33,911 cattle were protected. The number done by serum alone method decreased from 1468 to 547. Trials were carried out and minimum dose of Anti-Serum required in Serum-Simultaneous inoculation against Rinderpest was fixed up, resulting in much economy. Mortality from Anthrax was 2,300 as against 3,612 in the previous year, all in bovines only. 4,724 inoculations by the Serum-alone method were done against this. Haemorrhagic Septicaemia and Black Quarter claimed a large number of deaths, viz. 6,825 and 6,416 respectively as against 7,550 in the previous year. 51,053 were inoculated by serum-alone method against Haemorrhagic Septicaemia 83,395 animals were inoculated against Black Quarter in the following manner; Serum-alone 25,048, Vaccine-alone 13-306, Sero-Aggrasin 508, Aggrasin-alone 161, and Sero-Vaccine 44-472.

Deaths from Foot and Mouth Disease rose from 15,090 to 17,020. 1187 cases of Nasal Schistosomiasis were met with during the year. Madanapalle circle alone where a Special Veterinary Assistant Surgeon was placed on duty, contributed 456 cases. Almost all cases were successfully treated with Antimonium Tartaratum. A few cases of Piroplasmosis, Coccidiosis and Bovine Lymphangitis were also met with and treated.

There was no case of Glanders in the year. Treatment with Naganol was tried in most cases of Equine Surra with satisfactory results. There were few cases of Kumri and Strangles. One case of Tuberculosis was found in Bobbili. Sheep-pox, Rabies and Poultry Diseases such as Fowl-cholera, Pseudo-fowl-pest and Spirochytosis have also been recorded. 700 cases of chronic luxation of Patella in bovines and 23 cases of Urethral Calculi were also treated.

There were 112 Veterinary Institutions including the Madras Veterinary College Hospital, Cattle Farms Hospitals at Coimbatore and Hosur. Besides, there were four private Veterinary Institutions. There was no addition to the number of Government Institutions, on the other hand the one at Sivaganga was closed, but the Samasthanam there fortunately opened a private Institution in the Government premises for the benefit of the public and under the present policy there is no possibility of opening more Institutions. This is a regrettable state of affairs.

The total number of in—and out—patients has appreciably increased from 234,705 to 242,860. Similarly the number of cases supplied with medicines but not brought to the institutions rose from 6,497 to 8,149,

The Touring staff increased from 97 to 103 and the cases treated by them, from 74,315 to 102,261. The number of castrations increased from 52,521 to 62,565,

Poison was detected in 14 cases out of 44 animals from which viscera were examined by the Chemical Examiner for criminal poisoning. Six cases of criminal poisoning were prosecuted resulting in 4 convictions and 2 acquittals. 220 were examined for malicious injury. Number of convictions under S.P.C.A. Act rose from 9,595 to 11,408, Trichinopoly and Coimbatore contributing 2,848 and 3,155 respectively.

The order of the Government that the cattle should carry the certificate of having been inoculated against Rinderpest and bear tattoo marks before they are admitted into the forest bison areas was extended for a term of another year.

The Subordinate staff continued to do the inspection of meat and lethal chambers in many localities.

Propaganda work was carried on as in previous years. The work in connection with Rural Development Scheme in the Trivellore Taluk near Madras started in the previous year was discontinued under the orders of the Government and the Special Veterinary Assistant surgeon posted for the work was withdrawn from the area. He visited the important scheme centres, delivered magic lantern lectures till the discontinuance of the Scheme, and conducted the livestock and other surveys.

The staff of the Department attended the several Annual and the Weekly cattle Fairs including those where the cattle Disease Act was enforced.

Under Horse Breeding we find only two stallions in the beginning of the year and one of the two was sold away very soon, being unfit. Only 14 mares were covered during the year.

The total number of sheep and goats exported to Ceylon during the year fell from 39,502 to 38,289. The fall is attributed to the large export of animals under contract from Aden. At the rate of two annas per head, the Department realised Rs. 4,827-6-0 as fees for the certificates issued at Tuticorn, on the sheep and goats exported, while the expenditure was only Rs. 2066-2-0, thus leaving a profit of Rs. 2,761-4-0. There is a Special Veterinary Assistant Surgeon detailed for this duty.

The expenditure of the Department including that incurred in connection with Veterinary Investigation Scheme was 9,31,736-15-6 against Rs. 9,04,392-1-10 during the previous year.

Under future programme of work we find the refresher course in the College has been extended from 6 to 9 months from 1st July 1935. The introduction of the University Degree Course and the recognition of the Madras Veterinary college as a constituent College of the University, have become accomplished facts, from July 1936.

The opening of a model Dairy attached to the college has been promised in the report.

The X-ray apparatus referred to in the report has been already installed in the college Hospital.

The programme says proposals for the opening of more Veterinary Dispensaries will however be sent up to the Government *only* when financial assistance is forthcoming from the Local Bodies and others interested. It is very well known that very few Local Bodies have been able to balance their budgets even as at present. It is not stated what steps will be taken to induce or compel such Local Bodies and stimulate private philanthropy to come forward with the financial assistance towards the opening of more of these really useful Institutions.

Towards the end of the year, the Department obtained a Motor lorry of the Department of the Public Health for carrying on the propaganda work, and fitted it with the necessary materials. This Motor van is already touring in the interior doing useful work.

The report is really a record of increased and effective work.

Annual Report of the Veterinary Department, Federated Malay States, for the year 1934.

Captain S. H. Whitworth, D.M.V., B.V. Sc. M.R.C.V.S., was the Director of Veterinary Research and Veterinary Adviser during the year. Each of the four States Perak, Selangor, Negri Sembilan and Pahang is again in charge of a Government Veterinary Surgeon, with Assistant Veterinary Surgeons and Veterinary Inspectors as subordinate staff. None of the six Assistant Veterinary Surgeons was promoted to the post of Government Veterinary Surgeon. But two M. R. C. V. S., candidates have been newly recruited as Government Veterinary Surgeons during the year.

The report gives the livestock survey for the year under review, with figures for the previous year for reference. There is an increase in the various species of animals. It also mentions the approximate value per head, in dollars as follows:—Buffaloe 47, Cattle 38, Sheep and Goat 7, Pig 11. No value is mentioned under dog and horse. At the above rate the total estimated value of buffaloes, cattle, sheep, goat and pigs in the F.M.S. is 7,067,408 dollars. Figures for poultry are not available. Similarly figures under export and imports under different species of animals are also given for reference. How we wish for similar information in each of the reports of the Civil Veterinary Departments in India!

The poultry diseases continue to cause considerable losses. Excepting this, there were no serious outbreaks of stock diseases. A vigorous dog shooting policy and the enforcing of muzzling of dog effectively checked the spread of rabies, of which only one dog died. A fatal case of canine Trypanosomiasis has also been recorded in the imported dogs. In a herd of 64, goats, 46 were affected with contagious caprine Pleuro-pneumonia, 40 of them died and 6 recovered. The outbreak occurred shortly after the introduction of Indian goats to the farm. The Department can restrict the movements of livestock to prevent the spread of the disease and it has availed itself of this power to the great advantage.

Tuberculosis in a pig was detected in a Kuala Lumpur slaughter house. Out of a number of outbreaks of poultry diseases "in only one was a causative bacterial agent—a gram negative coccobacillus, showing characteristic bipolar staining in blood and organ smears. From the clinical symptoms, post-mortem findings and the results of extensive passage experiments, it was suspected that the organism was the *Pasteurilla Avium*, although certain of its biochemical reactions did not correspond exactly with those of the *Pasteurilla* in Europe. 21 of outbreaks investigated were considered to be due to an ultra visible virus. The results of passage experiments indicated that this virus produced fatal infection in fowls and goslings. The clinical features observed in this disease have not always confirmed entirely with any of the known virus diseases described in Veterinary literature, but from the clinical stand point, it is just possible that the disease may be a form of an already known disease. Cross immunity test will be of value in establishing the relationship of any of this disease in certain known virus infections and it is hoped that the material for the conducting of such tests will be available next year."

The Veterinary police instituted 534 prosecutions for offences under the cruelty to animals and other enactments, 446 convictions were obtained, the total amount of fines being 2546 dollars.

Animal husbandry continues to receive the attention of the department, Registration of Dairies and pervoyors of milk in Kaula Lumpur was also carried on and the department proposed to extend this Registration to other areas.

Attention is being paid to the poultry farming and the several problems connected with it, viz., introduction of infectious diseases, transportation of birds and improvement of breeds.

Experimental work on Protozoal blood infection of cattle, Animal nutrition and poultry diseases is being carried on and the report contains a brief record of interesting work so far conducted.

Experiments regarding the causes and preventive measures of "Dry coat" and non-sweaters are also being carried on. The report discusses some important points in this subject.

The report gives the number of different species of animals slaughtered and also figures under imports into Malaya of animals and poultry and their products, the total value being 16,009,568 dollars in 1934.

The report is a good record of useful Veterinary activities in the States.

Annual Report of the Veterinary Department, Straits Settlements, for the year 1934.

The Director of Veterinary Research and Veterinary Adviser, Malaya, is also in charge of this department in Straits Settlements. The chief activities of the department include as in Malaya (a) the administration of the Quarantine laws, which are specially directed towards the prevention of the introduction of disease and the control of epizootics which may occur within a settlement, (b) the improvement of local live-stock and development of this industry and the investigation of disease problems which confront the owners of livestock, (c) the administration of the laws relative to the prevention of cruelty to animals and (d) a number of duties the nature of which is included in the following review.

The Director has three Government Veterinary Surgeons, two Assistant Veterinary Surgeons and seven Veterinary Inspectors to help him in these activities.

There was an increase in the revenue over the previous year, of 11,663 dollars. There was an increase of 1218 dollars in expenditure. The report records the figures under imports and exports of different species of animals separately for each of the three settlements. There has been an increase in the imports of live cattle and sheep, indicating the general improvement in trade. There is a decrease in the number of *swine* imported but an increase in the total swine slaughter, indicating the increase in the numbers of swine bread locally.

Dutch Indies imported 6007 oxen and 77,889 swine Siam, 496 oxen and 1,158 goats, Australia 38,927 sheep, India 1690 goats and China 1583 pigs during the year into these settlements. There was an upward tendency in the price of live animals and of meat during the year.

The report records the livestock survey giving the numbers under different species for each of the Settlements. Under animal husbandary much information is given regarding the prevailing conditions of (1) Swine husbandry (2) Cattle and Dairies. (3) Sheep and goats and (4) Poultry Farming.

There were no serious outbreaks of livestock diseases, rinderpest and rabies being totally absent. Diseases of poultry however continue to cause considerable loss. Figures are given regarding the number of animals slaughtered in each of the species in the three settlements separately.

Throughout the year the absolute prohibition orders against the importation of dogs from several countries including India remained in force. Similarly the prohibition order remained in force against cattle from southern India, Bengal and Burma.

The Department has done quite useful work during the year in the chief activities entrusted to it.

The Physiology of Domestic Animals:—By H. H. Dukes, D.V.M., M.S., Professor of Veterinary Physiology, New York State Veterinary College, Cornell University; with a chapter on *The Physico-Chemical Basis of Physiological Phenomena*, by E. A. Hewitt, D.V.M., Ph.D., Associate Professor of Veterinary Physiology, Division of Veterinary Medicine, Iowa State College; a part on *Reproduction* by G. W. McNutt, D.V.M., formerly Associate Professor of Veterinary Anatomy, Division of Veterinary Medicine, Iowa State College; and a Foreword by H. D. Bergman, D.V.M., Professor of Veterinary Physiology and Pharmacology, Division of Veterinary Medicine, Iowa State College. Third revised edition; 643 pages, 168 illustrations: Published by Comstock Publishing Co., Inc., 124, Roberts Place, Ithaca, New York. Price \$6.00.

The book can be had in India through the Editor, Indian Veterinary Journal.

Most of the books in Veterinary Physiology are written in the same lines as Human Physiology and deal mainly with one class of animal *viz.* Horse. This book is a deviation from that. It deals with several aspects concerning many species of animals and in every chapter it gives very useful information regarding the accurate results obtained by the analysis of materials taken from various kinds of animals. The book is very short and concise and at the same time contains a lot of useful information. It can very well be followed as a text book in all the Veterinary Colleges. Besides, in it are incorporated the results obtained by various workers in the field and will be certainly a useful addition to the list of reference books. In places where it is not possible to give a detailed account the author had been very kind to refer the reader to various books where detailed information is furnished.

ERRATA

I, V. J. Vol. XII No. 4 April 1936

Page 319 line 3r. read "it had not lost" instead of "it had lost"

Page 321 line 4 from bottom substitute "Plate No. 5" instead of (vide Fig.1)

LEUCOCYTOZOA AND MICROFILARIAE OF FOWLS AND
HAEMOPROTEUS COLUMBAE OF PIGEONS IN PROVINCE WELLESLEY.

After publishing the above article in this issue of the *Journal* (Page 25 to 35) the following letter has been received by the author from Dr. Wenyon, C.M.G., G.B.E., M.B., F.R.C.S., Director-in-Chief, 183, Euston Road and the following corrections are carried out and forwarded to us.

For Leucocytozoa, wherever it appears both in the article and plates read—*Leucocytozoa sabrazesi* and for microfilaria read *microfilaria seguini*.

Copy of Dr. Wenyon's Letter

Dear Mr. Kuppusawamy,

I have received the slides you sent me and am much interested in the parasites in the blood. You are quite right as to the diagnosis.

As regards the fowl's blood both the Leucocytozoon and the Microfilaria are described by Mathis and Leger in 1909 from fowls in Tonkin. They actually named two species of Leucocytozoon (*L. Sabrazesi* and *L. Caulleryi*) from fowls, but whether these are merely forms of one parasite, it is difficult to say. The form you have in your films corresponds closely with their description of *L. Sabrazesi*, which is a parasite with long drawn out ends. In the other species the drawn out ends are absent, the parasites being mostly spherical. The microfilaria in the fowl's blood agrees with the one named *Microfilaria seguini* by Mathis and Leger in 1909. The haeteridium in the pigeons is most probably, as you say, *Haemoproteus columbae*.

Nothing is known about the transmission of the parasites of the fowls. In view of the frequency of the infections, which was also the case in Tonkin according to Mathis and Leger, it would be of interest to discover what is the transmitting host. The probability is that infection occurs when the birds are quite young and you should try to find out how soon after hatching the chicks become infected. You might then be able to determine what kind of biting insect is likely to be the host. The development of Leucocytozoon in the insect would probably be like that of malaria in mosquitoes and haeteridium in lynchia. If you can find the earliest stages of infection in young chicks developmental forms should be seen in smears of the organs.

With such a large number of infected fowls available you might be able to do something in the way of working out the life history.

Yours truly,

(Sd.) C. M. WENYON.

To,

A. R. KUPPUSWAMY,

Veterinary Inspector,

Bukit Nertajam, P.W. Via Penang,

Straits Settlements, Malaya.

Obituary.

A. R. VENKATACHALA AIYAR, G.M.V.C.

We regret to record the demise of Mr. A. R. Venkatachala Aiyar, Veterinary Assistant Surgeon, at Ootacamund on 25—5—36. He went over to Ooty to be in charge of that Hospital temporarily for a fortnight and that his demise should have happened over there then makes it all the more sad. It is comforting to note that he had gone there with Mrs. Venkatachala Aiyar and children and as such they were by his last moments. He was suffering from diabetes. A man of jovial disposition, who could never be missed in any company. Humour was ingrained in him and his company was an assurance to drive away all cares and anxieties. He held charge of many an important Hospital and was in the Selection Grade hoping to be promoted to the Gazetted rank in the near future. He was holding a high office in the Masonic World and we dare say he will be missed badly by that fraternity.

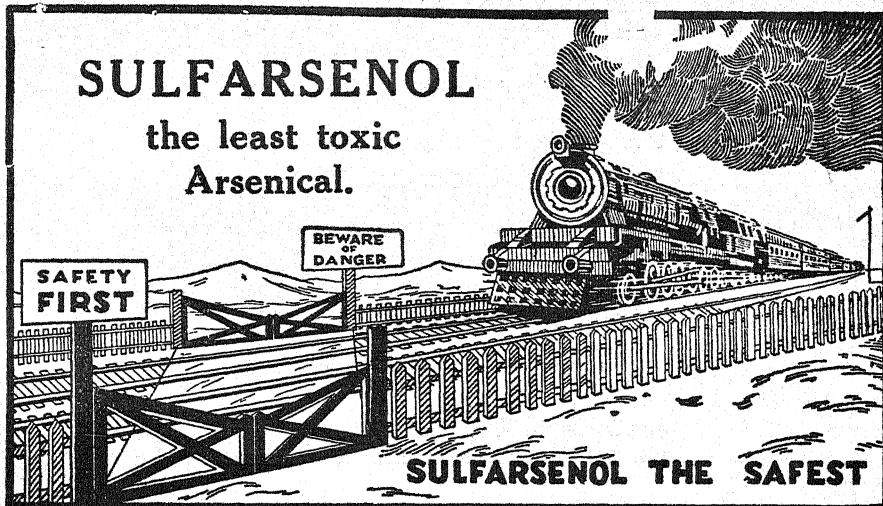
We offer our heart-felt condolences to Mrs. Venkatachala Aiyar and children.

It is with deep regret that we have to record the untimely demise of Babu Girish Chandra Dev, G.B.V.C., Veterinary Assistant Surgeon, Jagannathpur, Assam, and of Mr. P. Lall, Veterinary Assistant Surgeon, Jamtara, Bihar.

We express our deepest sympathy to the members of the bereaved families.

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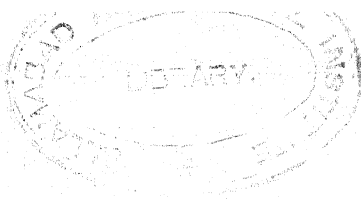
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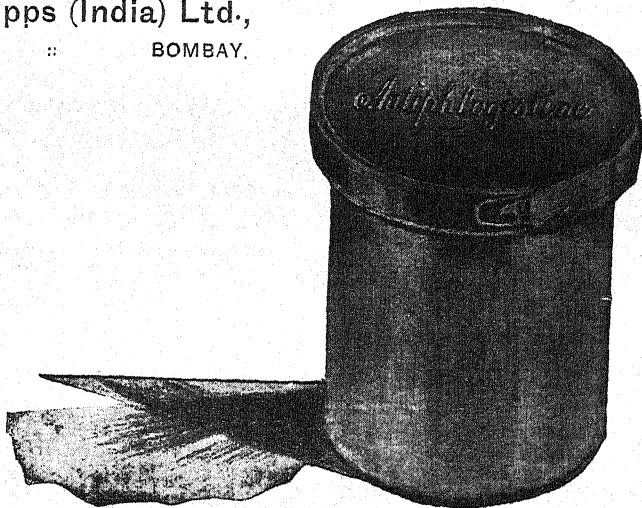
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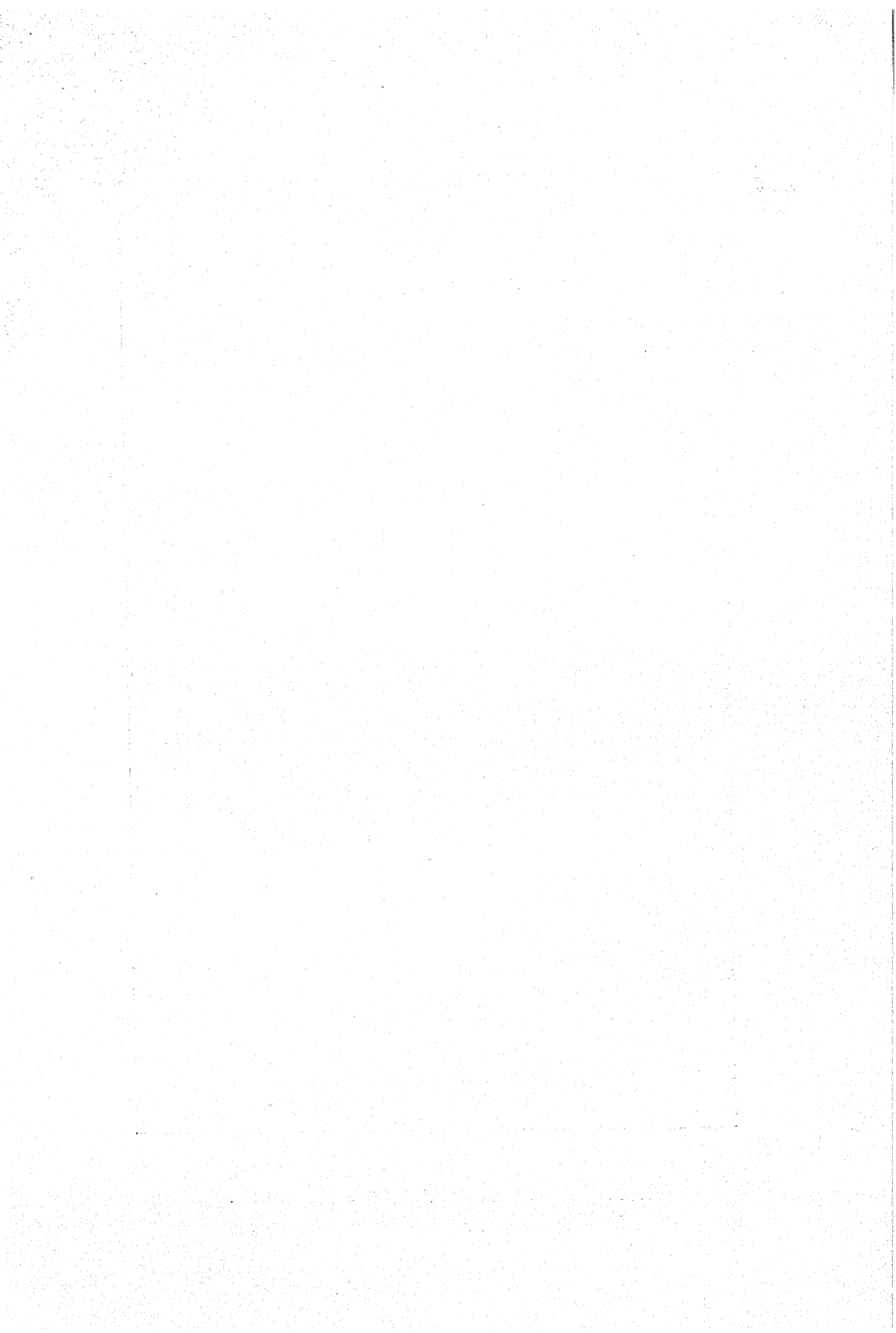
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**RURAL DEVELOPMENT AND LIVE-STOCK
IMPROVEMENT.**

Since the assumption of the high office of Viceroyalty of this vast country by H. E. the Lord Linlithgow, a large mass of articles has appeared in the daily press of the country about the rural development, live-stock improvement and "drink more milk" campaigns. It is really a healthy sign of the times that the public and the press have responded to the noble call of the great Viceroy who has personally set a graceful example in the matter of helping rural India. In the Rural Economy and welfare of the country there are many items in the maintenance, improvement and utilisation of Live-stock which when properly planned and conducted will greatly contribute towards the improvement of National Health and Wealth. A survey of the existing conditions is necessary to formulate a proper plan of activities of live-stock improvement. We remember, a survey of this kind was done by a Special Veterinary Assistant Surgeon of the Madras Civil Veterinary Department, deputed to work in the Rural Development Scheme started under the joint auspices of the Government of Madras and the Rockefeller Foundation, in Trivellore area of Chengleput District in the years 1933 and 1934. We had the privilege of going through his reports on the Live-stock Survey of the area. This report deals exhaustively with the animals generally found in the village, including sheep, goats, ponies, asses, pigs, dogs, fowls, and ducks, and their products.

We find in the report that side by side with the increase in the area under cultivation there has been generally an increase in the number of cattle also but there has been a great deterioration in the quality of the local breeds due to several causes. The cost of maintaining an efficient and an inefficient animal is more or less the

same but the work turned out by an efficient pair of bullocks is undoubtedly more than that done by an inefficient pair. The work that was usually done by five pairs of bullocks a few decades ago, needs now eight pairs owing to this deterioration of breeds. In a country where the agriculturist has mainly to depend upon the rains for all his important agricultural operations in the field, it is quite necessary that he should have efficient pair of bullocks to finish the work in the minimum time with a view to get the maximum benefits out of the season. Therefore every village has to import a large number of bullocks from outside for agricultural operations at a heavy cost annually to cope with the work in the area. The local breeds of cattle in many parts of the country, therefore require to be improved by selecting the best of the cows and crossing them with suitable bulls from outside. This will in course of time lessen if not altogether avoid the necessity for the purchase of a large number of animals annually from outside. A priori condition is the weeding of all scrub and immature bulls and castrating all bull calves. No doubt in each province some thousands of bulls are being castrated now by the staff of the Civil Veterinary Department but very few of these are done with a view to weed out the unfit bulls from herds. In fact what is required is that every breeding bull should have a certificate of fitness for stud purpose and no other male animal over certain age should be allowed to remain uncastrated in the village. The present cattle farms will not be able to meet the demand for breeding bulls on a large scale. Therefore private owners should be encouraged to maintain good quality bulls, either for sale or for service. We understand some local Governments intend instituting funds for the purchase and maintenance of breeding bulls. This is indeed a laudable idea. Among the higher castes of the Hindus in most parts of the country, there is a religious obligation to dedicate a bull for breeding purpose on certain occasions and this becomes public property after dedication. This ancient useful custom has now considerably deteriorated and only an ill-bred, an ill-fed and an unwanted bull calf worth a couple of Rupees is generally the animal that is dedicated now. In most cases it is the economic condition that is mainly responsible for this fall from the high ideal. We suggest that the village headman and a few other agencies such as village Panchayats should be authorised to receive and issue receipts if the donors choose to pay a money value according to their capacity instead of dedicating unfit animals. The agency thus authorised to receive the amounts should remit the amounts into the Treasury to the credit of the fund. If this arrangement is introduced and the public are encouraged to contribute to this fund, it will really help the movement very much.

A reduction in the existing number of inefficient animals is absolutely necessary to supply better feed and accommodation for the really efficient ones. At present the management of milch animals both in calf and milking is very much neglected and it is necessary to improve this management to ensure a better calf and a larger supply of milk. Better care of the young stock in feeding and rearing is absolutely necessary to supply the required number of efficient working animals. Improvement of cattle sheds on hygienic principles is a primary necessity. Very few of them have got mangers and provision of mangers in the cattle sheds will economise and avoid the wastage of fodder. Proper methods of collection and storage of urine and cow-dung for manurial purpose need to be introduced into every village. Sources of water supply require to be increased and improved to provide plenty of wholesome drinking water throughout the year and to minimise the incidence of diseases through water from such sources. The agriculturist with the extensive area under cultivation should be encouraged to grow forage crops like Guinea grass, elephant grass, cholam to increase and ensure continuity of fodder supply throughout the year to maintain the efficiency of animals. Silage should be attempted and demonstrated in each village. The cultivation of horse gram and other crops for the increase of the supply of concentrates needs to be encouraged.

Improvement in the present method of collection and distribution of milk by the establishment of Co-operative Milk Supply Societies may be taken up by the Co-operative Department. The plying of a number of motor bus services in all directions should be utilised to help this movement.

The present strains of poultry require to be improved by the introduction of improved strains and by grading. The present method of egg collection can also be improved by the establishment of local egg circles. The numerous poultry diseases which take a very heavy toll of birds should be investigated and attended to. The reporting and recording of the various diseases affecting sheep, goats, pigs and poultry should be made compulsory as number of these animals die from numerous contagious and non-contagious diseases at present, unrecorded and unreported. Improvement in the collection of statistics, recording of diseases and reporting of mortality among all domestic animals and birds is highly necessary. Proper method of segregation of the sick and disposal of the dead should be made compulsory. S. S. Inoculation or Goat-Virus vaccination against Rinderpest should be made compulsory for all cattle even as vaccination against Small-pox is made compulsory in men. Branding or tattooing for the purpose of recognising such animals thus protected

should be introduced. Periodical dosing of sheep for parasitic infestation is highly necessary. Parasitic diseases which lower the vitality of animals and make them easy victims to more fatal diseases need as much investigation and preventive measures as the more fatal diseases. With a view to encourage the owners of animals to take proper care of animals, it is necessary to institute prizes for the best kept animals and to organise animal shows in places where huge congregation of people takes place during festive occasions. Text books containing elementary principles and information on agriculture and live-stock should be written and prescribed for at least rural teachers and students. Songs containing the most essential information regarding the cause and preventive measures for contagious diseases among animals and birds should be composed in popular tunes and adopted in gramophones and radios. Radio and broadcasting should prove very useful to spread the important information on the several problems of live-stock.

Controlling the movements of cattle to prevent the spread of contagious diseases is urgently needed in this country. Improvement in the collection of bones, hides, horns and hoofs and proper utilisation of the same to the best advantage is also necessary.

All these and several other problems of live-stock require the best attention of whole time workers. At present in many provinces in this country the subject of live-stock forms a section of the provincial Agricultural Departments which have got at present many and varied problems of soils, plants and crops engaging their immediate attention. The Veterinary Departments best fitted to attend to the problems of live-stock both in health and disease, are at present required to attend only to the prevention and treatment of diseases of live-stock. The country will receive the full benefit of the scheme for the improvement of her live-stock, only if the sphere of activities of the Veterinary Departments is enlarged to include all the problems connected with live-stock.

THE RETIRING PRINCIPAL OF THE ROYAL VETERINARY COLLEGE: HIS CONTRIBUTION TO THE ESTABLISHMENT OF THE REBUILT COLLEGE

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The selection by the Governors of the Royal Veterinary College of a successor to Sir Frederick Hobday marks a stage in the history of the College and also in a remarkable career. It will not, we are certain, by any means mark the close of that career. We sincerely hope that Sir Frederick Hobday will yet be spared many years in full health and vigour to benefit the profession by the application to its service of his unique gifts with his usual indomitable energy and enthusiasm. He may count on the esteem and affection quickened in incomparably large numbers within our profession and among the outside public to provide him with abundant employment and interests to absorb his energies; so that, we can assure him, he has no cause whatever to feel disheartened.

Born in 1870, Sir Frederick Hobday was educated at Burton-on-Trent Grammar School and received his professional diploma from the London College in 1892, the year in which his great predecessor, Sir John M'Fadyean, was appointed Dean of the College. He was the first hospital surgeon of the new Dean, and the abiding impression which his industry and conscientiousness left upon Sir John's mind is revealed in words spoken many years afterwards at a luncheon to which members of the Councils of the N.V.M.A. and R.C.V.S. had been invited by the President, Mr. Male: "He (Sir John M'Fadyean) would say this, however, that Mr. Male was appointed by him to be Hospital Surgeon, and if he were asked to name the man who was the best Hospital Surgeon in his time he would find himself in some difficulty, that difficulty consisting in making a choice between Mr. Male and the present Principal of the Royal Veterinary College, Professor Hobday. Nothing ever seemed to tire them or diminish their enthusiasm for their work, and that, he thought, was the sort of thing that foreshadowed the success with which each had met in his career." He remained on the staff of the London College until 1897 as Professor of Materia Medica and Therapeutics and held charge of the out-patients' clinic, which at that time provided an extensive experience in horse practice. During this time he gained remarkable skill in operative technique and became a pioneer in small-animal practice—a side which had been almost entirely neglected by the veterinary clinician. His work on animal anaesthesia and the exploitation of a number of new surgical operations with the aid of antiseptic technique opened up a

field in which large numbers of veterinary surgeons in private practice find this day their main source of income. His reputation was no less considerable in the lecture room, and the lecture notes which he meticulously drafted in his subject remained for long with little amendment a safe *vademecum* for the professional examinations. The College regulations prohibiting outside practice by members of its staff and the meagre emoluments of junior professors in those days compelled him to seek more remunerative outlet in private practice, which he acquired in Kensington. This soon grew into one of the largest and most lucrative in London, being one of the first of the extensive small-animal practices. Meanwhile his services were in considerable demand by other members of the profession as an operator and expert consultant; his skill in equine ovariectomy and cryptorchid operations became widely known. In 1910 his name came into prominence in connection with an operation which had prospects of considerable economic success at the time and which had previously been exploited to some degree by workers abroad (Moller in Germany and Williams in America), namely, the operation of ventricle-stripping for the relief of roaring in horses. The high percentage of successes mentioned in his early communications must be credited, no doubt, very largely to his personal skill. His restless spirit found expression in prolific writing upon the subjects of his special skill, both in veterinary periodicals and in a rather considerable output of text-books, some of which have reached a number of editions [*Manual of the Practice of Veterinary Medicine* (Courtenay's), third edition; *Surgical Diseases of the Dog and Cat*, third edition; *Castration (including Cryptorchids and Castrating)* and *Ovariectomy of Troublesome Mares*, second edition; *Anaesthesia and Narcosis in Animals and Birds*.] He has been editor of *The Veterinary Journal* since 1905.

Soon after the outbreak of the Great War he placed his skill at the disposal of the Army, his reputation, among regular officers of the R. A. V. C. already standing very high. He saw service in France and afterwards in Italy. He was first appointed in France to arrange for the disposal of surgical work at one of the field veterinary hospitals and afterwards to instruct veterinary officers attached to units in the method of testing for glanders by the I.D.P. mallein test. He then held charge of the veterinary reception hospital at Abbeville, to which was attached the school of farriery. The hospital, which was a movable one, was selected to accompany the 14th Army Corps to Italy in 1917, and in that country he came into close contact with prominent Italian veterinarians. On demobilisation he returned to his private practice cheerfully to retrieve the loss sustained during his absence and enter with renewed energy into public work of veterinary

interest. One of his most cherished ideals had long been the establishment of closer and more cordial relationships between the medical and veterinary professions; one of the most productive fruits of his labours to this end was the formation in conjunction with the late Sir Clifford Allbutt, in 1923, of a Section of Comparative Medicine in the Royal Society of Medicine. He also took a very prominent part in various public humanitarian interests concerned with animal welfare, and in this way his name became familiar to the large body of the British public who are animal lovers. He served on the Council, R.C.V.S., from 1910 until the outbreak of the War and again from 1925 until the present time. He has been examiner in *Materia Medica* and *Therapeutics*, 1901-1910, and *Surgery*, 1914-1923. He was Steel Memorial medallist, R.C.V.S., 1899, and the second recipient of the Victory Medal of the Central Veterinary Society.

With his unrivalled gifts of public appeal, especially to humanitarian interests, and the reputation he had so widely gained among the public in the special spheres of utility which have come to absorb, perhaps most conspicuously in the ordinary public mind after all, the services of qualified veterinarians, it was not surprising that he was selected by the Governors of the Royal Veterinary College to succeed Sir John M'Fadyean on the retirement of the latter in 1927. The College urgently required rebuilding and funds were imperatively needed to begin the work as early as possible. The scheme of rebuilding contemplated originally by Sir John M'Fadyean before his retirement was a somewhat modest one, and after representations had been made to Government a grant from the Development Fund was sanctioned on a pound for pound basis of a sum up to £35,000. An appeal for the public subscription of £50,000 was made, and by the time of Sir John M'Fadyean's retirement in September, 1927, a sum of £13,000 had been raised by these means. The number of students attending the College at the time was 117. The plight of the College now became a matter for grave public concern. Largely through the propaganda carried out by Principal Hobday himself, advocating the advantages of a veterinary career and the openings which to his mind it offered to women as well as to men, together with the growing demand for the whole-time employment of salaried veterinarians in the public services, the numbers of students entering the College rapidly increased. Concurrently, the inadequacy of the facilities for a proper veterinary training was emphasised in several official quarters, and the national attitude towards the premier veterinary institution of the country became the object of severe castigation in the Lovat Report (1929) upon recruitment for the Colonial Veterinary Service. An authoritative enquiry into the steps necessary to restore the London College

to a satisfactory footing was therefore instituted by a Departmental Committee appointed by the Ministry of Agriculture, under the chairmanship of Sir Charles J. Martin, in July, 1928. This committee unhesitatingly confirmed the conclusions of the Lovat Committee, that the deplorable condition to which the College had been reduced both as regards buildings and finance amounted to a national disgrace. The recommendations of this committee, for rebuilding and reorganisation, have been referred to in the leading article published in our issue of July 25th. At the time of the publication of the Martin Report, in 1929, the amount of money collected by voluntary subscription through Sir Frederick Hobday's efforts had increased from £13,000 to £32,000. Conditions, however, now threatened to become desperate, unless strong monetary support from the Government was assured to augment whatever sums could be realised by private subscription. On July 24th, 1930, the Earl of Harewood, who had then been elected to the Board of Governors of the College, called attention in the House of Lords to the recommendations of the Martin Report. He declared that the College had almost reached the stage when the Governors would have to refuse to accept new students. The Government then stated that it was willing to make an offer to give pound for pound for the £30,000 (approximately) already collected, and £70,000 in addition, making £130,000 available in all for rebuilding. It was also stated that when the sum at the disposal of the Governors reached £200,000, the Government would be prepared to make a further grant of £50,000. The Governors, however, expressed their view that they could see no hope of raising by private subscription the additional sum of £70,000 necessary to qualify for the Government grant. In 1931, the subscription list had risen to £39,000, and the Government grant was postponed owing to the financial depression. By February, 1932, the state of affairs had so far improved, however, that the announcement was made that the rebuilding scheme would be launched during the year, and £50,000 or £60,000 was to be spent on the first block (clinic and hospital). Special appeal programmes were issued by Principal Hobday, comprising Flag Days and other methods of attracting public notice, and the subscription list received a donation from the King. Then, on October 8th, 1932, it was announced that the Appeal Fund had reached the total necessary to claim the Government grant of £150,000. In recognition of his efforts, Principal Hobday received the honour of Knighthood in the New Year's Honours List in 1933. In a statement which he broadcast afterwards to the public (January 8th, 1933) he appealed for further subscriptions to an additional fund of £250,000 which was still necessary to equip the new buildings. Later in the year (July 24th), the Governors

announced that the site of the College had been purchased from the Ecclesiastical Commissioners and the proposed additional site to the north of the old College had been acquired, upon which a hospital block was to be erected. We understand that the total amount of money collected to the present time by voluntary subscription amounts to £116,000. The number of students attending the College has now risen to the unprecedentedly high figure of 326, and still larger entries are predicted. The staff has been considerably augmented and their rate of remuneration is higher than it was in 1926. Certain features in the extended staffing of the College, such as the Courtauld Chair of Animal Husbandry must be credited entirely to the personal efforts of Sir Frederick Hobday.

We shall look forward hopefully to recording rapid material progress of this order towards the full equipment and organisation of the Royal Veterinary College to take its rightful place as a model and foremost centre of veterinary education. Progress of this kind must be reckoned as essential to meet the ever-widening demands of a thorough modern training, though, it is needless to say, it can never be regarded as a substitute for a tradition of sound and competent learning or the inspiration conveyed to students by first-class teachers. At this present stage we must recognise that in the provision of the splendid edifice wherein future generations of British veterinary surgeons may be properly guided to undertake the pursuit of their calling, the veterinary profession, agricultural interests, animal lovers, and the British public generally, all owe a lasting debt of gratitude to Sir Frederick Hobday.

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Sir Frederick Hobday: A Personal Tribute from one of Our Oldest Members

As one of the older men in the profession I was sorry to read in some of the recent issues of the *Veterinary Record* that Sir Frederick Hobday was resigning the Principalship of the Royal Veterinary College before the rebuilding had been completed. It must be recognised that when of mature age he gave up a very extensive surgical and consulting practice to go to the College with the object of getting it rebuilt in as complete and up-to-date a manner as possible. He has spent much money and time in visiting the principal veterinary schools in Europe and America for the purpose of gleaning first-hand knowledge of their structure, constitution and teaching so as to have the Royal Veterinary College placed on the highest possible foundation consistent with the amount of space and money allowed for its completion.

So far as obtaining the money has gone, it has been no easy task to undertake this in such a conservative country—which, in spite of its great wealth and its excellent breeds of “economic” animals raised for the feeding and clothing of its people and for exportation to various countries in the world, has contributed less generously to the support of veterinary education and research than any other in the world.

In the earlier part of his professional career Sir Frederick was the first to take up seriously the study and teaching of the diseases and treatment of the “sentimental” animals, such as the cat and dog, so long neglected by the main body of the profession and by the colleges. He also initiated the teaching and value of anaesthesia among the students. This knowledge has become so valuable to the younger generations since the advent of the motor and the decline of the horse that one is constrained to ask, where would they have been without it?

Towards middle life he became the pioneer of the movement for bringing the medical and veterinary professions together and assisted in the formation of the Comparative Medicine Section of the Royal Society of Medicine, he being the first veterinary surgeon to become its president.

He was the first man in the profession to receive a knighthood for *extraordinary* services rendered to the College.

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Sir Frederick has struggled very hard to induce people to subscribe to the fund for rebuilding of the College and to endow it with chairs. It was one of the most difficult tasks, but he followed the action of Oliver Twist who took all he could get and then asked for more.

His initiative, courage, perseverance and accomplishment, coupled with the expenditure of energy, time, etc., during the nine years he has held office as Principal of the Royal Veterinary College have justified his existence as such. Before he went there the College was a disgrace to the profession and to the biggest city in the biggest Empire in the world. He has done what no other man in the profession has done: no other man put himself forward to do what Hobday undertook and accomplished—a great task.

HENRY GRAY.



Rai Sahib GOURI SHANKER SHRIVASTAVA,
Officiating Director of Veterinary Services, C. P.
who retired on 11th November 1935.

RETIREMENT OF RAI SAHIB GOURI SHANKER SHRIVASTAVA.

AN APPRECIATION—(*Contributed.*)

Rai Sahib Gouri Shanker Shrivastava was born at Saugor on the 13th December 1880, and was educated at the Saugor High School. After education he obtained a scholarship from the C. P. Government and joined the Veterinary School at Ajmer where he obtained the diploma in Veterinary Science winning the first prize in medicine. He joined the Central Provinces Veterinary Department in 1902 and remained as Veterinary Assistant Surgeon till 1911. In 1912 he was raised to Veterinary Inspector's post. In 1918 he was appointed as Deputy Superintendent which was the second post in the Civil Veterinary Department. In March 1933, he was appointed to officiate as Deputy Director for 9 months. In March 1935 he was again appointed as Offg. Deputy Director of Veterinary Services, and subsequently on 17th August 1935, he was appointed as Offg. Director of Veterinary Services.

Besides being a scientific man Rai Sahib Gouri Shanker Shrivastava had undoubted organising capacity and in the backward tract of Chhattisgarh he made great improvements and was responsible for opening several new dispensaries.

The success which Rai Sahib achieved needs no emphasis. In the Central Provinces, perhaps he is well remembered to be a true friend of cattle owners. It was no unusual thing to find him in peasant's cottage attending to his sick animals.

Rai Sahib Gouri Shanker Shrivastava started his career when the department was in its infancy and has been a valued member of the department. Not only was he popular amongst his subordinates due to his kind and sympathetic treatment but he also established a reputation for the department by his high standard of work coupled with honesty on which he insisted.

The recognition of Rai Sahib Gouri Shanker Shrivastava's services to the Veterinary Department by the award of the title of "Rai Sahib" in 1928, and last year by the award of their Majesty's medal gave pleasure to wide circle of his friends and colleagues.

He has completed 33 years of active service and has retired on the 11th November 1935. His friends wish him to enjoy a good long retired life and trust that he will contribute still further to the advancement of the Veterinary Science.

General Articles.

RINDERPEST—ITS DIFFERENTIAL DIAGNOSIS AND TREATMENT.

BY

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There are several diseases both of contagious and non-contagious kind which can be mistaken for Rinderpest on account of the similarity of some of the symptoms in each case. In order to be able to make a positive diagnosis of Rinderpest and to eliminate the other diseases, it is essential that a Veterinarian should possess sufficient experience and knowledge, both theoretical and practical, of the diseases which are likely to be confounded with Rinderpest. And such experience and knowledge can be gained in less number of years in Research Institutes and establishments, where large numbers of animals are maintained and diseases both contagious and non-contagious are of frequent occurrence.

The following diseases which resemble Rinderpest to some extent will be considered in this article; Foot and Mouth disease—This is likely to be mistaken for Rinderpest on account of its contagious character, presence of high fever, its buccal lesions and salivation and frothing at the mouth. Though Foot and Mouth disease and Rinderpest are both contagious, there is the difference that the former spreads much more rapidly and appears to attack several animals simultaneously, whether they are close contacts or quite distant from the affected ones, thus proving that the infection is conveyed invariably both through air and by contact as compared with Rinderpest, where infection is chiefly a 'nose to nose' one. The temperature in this disease will rise as in Rinderpest up to 104° and 105°F. but after a short period of incubation it comes down, becoming almost normal on the appearance of the vesicles and ulcers, while it remains high, longer in Rinderpest and declines to normal only on the onset of diarrhoea. The vesicle in Foot and Mouth disease is much larger and may be more aptly described as a 'bleb' or 'blister.' It is seldom seen in animals in a herd during a natural outbreak, as the disease is usually detected in its late stage and the vesicle bursts easily to form an ulcer. The vesicles in the Foot and Mouth disease commonly appear at the junction of gum and lip and on the dorsal surface of the tongue while in Rinderpest they appear on the

gums and lips and under-surface of the tongue and are very small each being of pin-head size. The ulcers of Foot and Mouth disease are larger, deeper and reddish, while those of Rinderpest are smaller, shallow and yellowish-grey. Even, when many of these ulcers coalesce to form a big one, it can be distinguished from that of Foot and Mouth by its colour and zig-zag edges. The peeling of the membrane at the dorsal surface of the tongue particularly at the tip leaving a raw ulcer is peculiar to Foot and Mouth disease. Diarrhoea is invariably present in a case of Rinderpest while it is rarely present in the Foot and Mouth disease. Salivation and frothing at the mouth are more pronounced in a case of Foot and Mouth disease while the smacking of lips so characteristic in this disease is practically absent in a case of Rinderpest. Foot lesion is absent in Rinderpest and the percentage of mortality is very high in this disease, as compared with Foot and Mouth disease where the percentage is remarkably low.

Malignant Catarrhal Fever of Cattle—The points of resemblance are presence of fever, lacrymal and nasal discharges, buccal lesions, and fairly heavy percentage of mortality. The temperature, which rises rapidly up to 104°F and appears after a long period of incubation remains high for a few days and declines to a little above normal and many stand at this height till the approach of death while in Rinderpest the temperature remains high for a few days and declines immediately to normal or even subnormal on the onset of severe diarrhoea. The discharges from the eyes and nostrils in this disease are profuse and preceded by severe inflammation of the mucous membranes and in acute attacks, conjunctivitis with opacity of the cornea and the appearance of pseudo-membranes on the nasal mucous membrane and ulcers, may be observed and respiration even may become laboured in such cases. The symptoms are much more pronounced as compared with Rinderpest where the discharges in cattle are slight and opacity of the cornea and pseudo-membranes have not been observed. The buccal lesions, which appear in the form of grey or yellowish pseudo-membranes leaving superficial granulating ulcers when detached may develop on the gums and lips but seldom on the under surface of the tongue. In Rinderpest, on the other hand, the lesions develop first in the form of numerous vesicles which burst to form ulcers and loose membranes are observed usually in the later stage. Diarrhoea which is invariably present in Rinderpest is rare in this disease. Malignant catarrhal fever is not contagious but infectious and its percentage of mortality varies between 50-90.

Stomatitis Simplex—This disease is neither contagious nor infectious but may develop among a large number of cattle at one time when they are subjected to the same conditions as change of pasture and change of climate. The mouth lesions with presence of inappetence and diarrhoea in a few cases may suggest outbreak of Rinderpest to a less experienced Veterinarian and only careful examination of the animals can reveal the distinguishing characters and enable one to eliminate Rinderpest as the causal factor of the epizootic. It was observed at Muktesar on a few occasions that stomatitis had appeared in a large number of hill bulls and several had developed symptoms such as ulcers on the gums, lips and sides of the tongue, salivation, dullness and diarrhoea. The temperatures were taken and a few animals had slight rise. It was possible to eliminate Rinderpest as the cases that had severe ulceration in the mouth had no diarrhoea, the typical tiny vesicles were absent, the ulcers did not have the characteristic zig-zag borders and, considering the high susceptibility of the breed, there were no casualties, among the animals.

Coccidiosis—The presence of fever and diarrhoea with or without the mucus and blood and rapid loss of condition may suggest Rinderpest infection but it is distinguished from the latter by the following points; the digestive disturbance precedes the febrile rise, the faecal evacuations have not the strong foetid odour as in Rinderpest and may contain blood and mucus even in the early stage. The disease is neither contagious nor infectious and the absence of mouth lesions and nasal and lacrymal discharges distinguishes it from Rinderpest in which all these symptoms are well marked.

Piroplasmosis—This disease may be mistaken for Rinderpest when fever, lacrymal discharges and diarrhoea are present. The discharges from the eyes are not marked and seldom become mucopurulent and diarrhoea is rarely present. Even when diarrhoea is present, the evacuations are less frequent and not foul smelling and are characterised by the dark-red colour and thick consistence of the faecal matter. It is not uncommon for cattle to have mixed infection of both Rinderpest and Piroplasmosis simultaneously in which case the symptoms of both the diseases will be observed such as fever, vesicles and ulcers, coloured urine, etc.

Treatment of Rinderpest has not met with success in spite of intensive efforts to cure the affected animals of the disease. It is inadvisable to adopt it to the exclusion of all other protective measures as the disease is contagious and an animal under treatment would be a source of infection to other animals

that may be in contact or are likely to come in contact with it. Treatment may be undertaken in cases where there are ample facilities for strict isolation of the animal and its attendant. In the European countries where this disease is absent, treatment is not at all adopted as the laws require immediate destruction of all the animals that are found affected. In England and Holland attempts were made in vain to find effective medicinal treatment. In India, Holmes in his intensive experiments with various drugs on the highly susceptible Himalayan cattle at Muktesar also failed to effect cures with any particular drug to such an extent as to pronounce any definite opinion. He experimented with drugs such as Carbolic Acid, Tr. Iodine, Potass. Permang, Catechu, Trypanblue, Quinine, Salol, Cyllin, Mag Sulphas, etc. and employed them mostly during the febrile and vesicular stages and the only drug that proved to be satisfactory to a slight extent as a curative, was Tr. Iodine injected intravenously. Treatment with Anti-Rinderpest Serum or any suitable drug will produce satisfactory or unsatisfactory results according to the stage of the disease at which it is undertaken and the susceptibility of the animal affected. Injection of the Anti-Rinderpest Serum of high potency in large doses viz., one and half to double that required for immunisation by the Serum-Simultaneous method given either subcutaneously or intravenously at the initial stage of the disease may effect cures in some cases particularly when the animal thus treated is of less susceptible type, but the same or even larger dose of serum will usually fail to cure an animal in the advanced stage of the disease when severe diarrhoea has set in and the animal is exhausted. If the operation can be easily done, the intravenous injection of the serum will be advisable in most cases and prove more effective. Treatment of affected animals by serum inoculations being expensive should not be undertaken on a large scale particularly when the animals are of low value and the owners in certain cases may not be able to bear the cost but it would be indicated in the case of valuable animals whether foreign or Indian bred, even if the disease be in fairly advanced stage.

Good nursing of the patient plays a very important part in the successful treatment and it consists in allowing the animal bedding, rug and warm rice gruel two or three times a day. Direct exposures to cold draughts should be avoided and the animal should not be disturbed unnecessarily. No attempt should be made to stop the diarrhoea with the use of strong astringents. The main effort should be directed towards maintaining the strength of the animal with liquid nourishing food, and soft fodder which can be easily digested.

Some patent preparations which were reputed to have cured several cases of Rinderpest in India were subjected to test at

Muktesar on the highly susceptible hill cattle employed as virus producers, but they failed in every case to bring about their recovery. It is probable that these preparations were employed on affected animals of less susceptible type and several cures obtained, but it is well known that during natural outbreaks of Rinderpest in many parts of India among the resistant type of cattle, a fairly high percentage of recoveries is not uncommon though the affected animals are rarely subjected to any special treatment and much personal attention. Any drug or medicinal preparation cannot be called a specific unless it is able to bring about recovery in a large number of affected animals of highly susceptible type, but in the absence of a reliable and effective curative treatment, the so-called 'specifics' which have been certified to have cured a large number of affected animals would be worth a trial.

Curative treatment being ineffective and inadvisable owing to the highly contagious nature of the disease, preventive treatment in the form of police and protective measures would seem to be a more reasonable method of combating outbreaks and checking spread of the disease to the healthy animals of the herd and those of the neighbourhood. The slaughter of the affected and suspected animals as practised in the European countries where the cattle-plague is non-existent, cannot be carried out in India, owing to the frequency of the outbreaks, absence of laws, and the religious susceptibilities of the people. The measures to be adopted in this country are segregation of affected animals and if possible subjecting them to either drug or serum treatment, and immunisation of the contact animals by either serum alone or serum-simultaneous or goat virus alone method. The locality should be considered as infected area and all animal traffic should cease. All the cattle in the neighbourhood should be protected by serum inoculations and should not be allowed to graze or move about near the infected area. Dead animals in the infected area should be either burnt or buried deep and transfer of hides and meat to the healthy areas should be barred.

A MILD OUTBREAK OF RINDERPEST AND ITS SUPPRESSION.

BY

S. MOHAMED BABJEE, G.B.V.C.
Veterinary Inspector, Kedah.

In writing this article, it is the writer's intention to place before the profession observations on an outbreak of Rinderpest as it occurred in his district.

At first there was some difficulty in diagnosing the disease as there had been no cases of Rinderpest for at least past fourteen years in this district. The symptoms usually considered characteristic of Rinderpest such as bloody diarrhoea, ulcers in the mouth, the gall-bladder, abomasum and intestines were not seen in the first few of the several postmortem examinations carried out. The origin of the disease is still not traced but there is a strong suspicion that the disease most probably had been introduced by cattle or buffaloes smuggled into this district from an infected area outside the State.

The outbreak started with the death of two buffalo calves, aged between one to two years, after a few hours' illness only. These buffalo calves belonged to a Malay living in a Rubber Estate. The illness of these buffalo calves was reported at 11 A.M., five hours after first being noticed sick. On arrival the following symptoms were noted:—temperature 96°F., eyes congested, small quantities of blood-tinged faeces being passed, slow and long drawn breaths, frequent groaning, looking at the flank (suggestive of colic), entire loss of appetite, and extreme weakness with inability to get up or move about. Both the calves died at 12 noon. A postmortem examination was held and the following lesions were noted:—the abomasum was markedly congested and brick red in colour and the small and the large intestines were highly congested. No actual ulcers were however seen in any of these organs. The Gall-bladder was much enlarged. The mucus membrane was congested and thickened. The bile was very thick and bloody in appearance.

The absence of ulcers in the mouth, in the gall-bladder, abomasum and the intestines and the too sudden deaths were symptoms very peculiar for Rinderpest and it was suspected to be probably a case of food poisoning as examination of blood smears revealed no bacterial infection, and inoculation intra-peritoneally of blood from the calves taken before death into a guinea-pig produced no reaction. There were no further reports of any sick animals for an interval of four days and then it was learnt that three cows were sick just a few

hundred yards away from the place where the first two buffalo calves had died. These on examination showed temperature of 102° to 103°F, slightly foul smelling diarrhoea, eyes congested and discharging slightly and entire loss of appetite. Examination of the mouth revealed no ulcers. Of these three cattle two died after being ill for only three days. The third one recovered after seven days. After these cases, three buffaloes died suddenly in the same village only a few yards away. The symptoms noted according to owner, were blood tinged diarrhoea only. The cases were reported after death only. The postmortem lesions were similar to the first two buffalo calves mentioned previously.

It was in the middle of the outbreak that the lesions usually considered typical of Rinderpest were seen, such as blood-stained shooting and foul smelling diarrhoea, discharge of viscid mucus from eyes, nostril and mouth, high temperature 105° to 107° F, ulcers in the mouth and offensive breath and the peculiar husky cough were noted.

The symptoms were more marked in buffaloes than in cattle, the buffaloes almost invariably dying after two or three days' illness. In cattle the illness was prolonged and symptoms were milder, there being a tendency for death to occur only in cases where the cattle had been entirely off-feed and improperly nursed by the owner. As the outbreak was ending the symptoms shown by the affected cattle and buffaloes were very mild and almost escaped notice. These cases were detected only when careful examination of every in-contact was carried out such as taking of temperatures morning and evening, examination of mouth for ulcers and of offensive breath, loss of appetite etc. All animals showing these were treated as suspicious and were immediately isolated.

The outbreak started on 3-9-35 and ended on 7-11-35 when the last case was destroyed. Quarantine restrictions were however maintained for another three weeks before movement of cattle, buffaloes, goats, and swine were allowed. The outbreak was not given much chance to spread being actually confined to three adjacent villages only about 3 miles apart.

Strict quarantine measures were adopted from the beginning. The infection in this outbreak was probably spread from one village to another by the owners and care-takers of sick animals visiting and handling their relatives' and friends' cattle in the different areas affected and also by careless owners feeding their cattle with contaminated fodder. There was a total loss of 38 animals dying of the disease, of which 15 were cattle and 23 were buffaloes. A total of 55 animals sick of the disease were destroyed, 39 being cattle and 16 buffaloes. All owners of cattle and buffaloes destroyed were compensated by the

Government. The State Veterinary Surgeon assessed the value of the cattle or buffalo to be destroyed and the average amount paid was half to one-third of the market value of the animal, which the owners accepted as satisfactory without any complaints.

The methods adopted in the eradication of the disease were at first, the ordinary method of isolation of the affected, contacts and non-contacts into separate groups, and the absolute prohibition of movement of any cattle, buffaloes, goats, sheep and swine from the affected area, a radius of about 10 miles and all animals were confined to their enclosures and pens. No grazing was allowed and grass had to be cut and supplied to the animals. Notices to the above effect were printed in English, Malay and Tamil and were put up in prominent places in the villages. In addition, Veterinary Police and Village headmen were put in charge of all affected areas under the direct supervision of the State Veterinary Surgeon and the Veterinary Inspector. Disinfectants in vessels were placed at points of entry into the affected villages and also at all cattle pens and enclosures for attendants to disinfect their hands and feet. All persons failing to carry out the quarantine orders were prosecuted and fined in the Courts. When the identity of the disease had been definitely established, destruction of all the affected cases was carried out by means of the humane killer. The usual procedure was that as soon as an animal (cattle or buffalo) was reported sick, the animal was examined by the State Veterinary Surgeon, and when he was satisfied that the animal was affected with Rinderpest, a hole was dug and the animal shot direct over the hole and buried 5 feet deep. The dung, litter etc., all were buried with the carcass. The surroundings were disinfected. The temperature of all contacts was taken morning and evening and all those that registered a temperature of 100° F or more for two or more consecutive days were destroyed as suspicious cases in order to cut short the outbreak by removing at once the reactors and giving very little time for the disease to prolong and spread further as it was seen that if diarrhoea had not yet started the chances of the disease spreading were remote.

Owing to the absence of reliable serum or other immunising agents, protective inoculation could not be carried out. The destruction method of controlling the outbreak proved very successful as will be seen from the few animals lost and about 2,300 cattle and buffaloes saved in this particular outbreak.

[Protection of all the healthy animals by the Serum-virus method of inoculation or by the goat-virus method could have been afforded. Serum and virus are available at Muktesar, Madras and Mysore.—Ed.]

RINDERPEST IMMUNISATION

AT

Livestock Research Station Hosur Cattle Farm,

BY

MUHAMED RAHIM-UD-DIN, G.M.V.C., P.G. (Edin).*Veterinary Asst. Surgeon, Govt. Cattle Farm, Hosur.*

This work was taken up at the beginning of last June under the supervision of the District Veterinary Officer, Vellore and the inoculation was carried out assisted by the Touring Veterinary Assistant Surgeons, Hosur Cattle Farm and Dharmapuri. Three methods were adopted in the process of immunisation, *viz.* Serum-simultaneous method, Goat-virus vaccination, and Serum-alone method. The herd consisted of Crossbreds, Scindhis, Kangayams, Hallikars and Ongoles, the total number of these being 330.

Controls:—Five. Two crossbred young bulls No. 216 and 217 born in the Farm (unprotected), one country young bull and one country heifer, both these obtained from outside; and Crossbred bull No. 211 (already protected by Serum-simultaneous method) was also utilised in order to study the action of goat virus on immunised cattle. On 7-6-1935, all the 5 controls were injected each with 5 c. c. of goat-virus subcutaneously.

(i) Crossbred bull No. 216 showed thermal reaction on the third day after injecting virus, followed by profuse lachrymation and mouth lesions.

(ii) Crossbred bull No. 217 showed similar reactions on the 12th day.

(iii) Country young bull had only thermal reaction on the 9th day with lachrymation, but no mouth lesions.

(iv) Country heifer on the 14th day showed only thermal reaction.

There was no diarrhoea in any of the controls.

(v) Crossbred bull No. 211 withstood 5 c. c. of goat-virus very well.

On 7-6-1935, except crossbred animals numbering 36 and one Hallikar bull, the remaining 293 animals were immunised by the following methods:—

S. S. Method.	... 14
Goat-virus Vaccination	... 190
Serum-alone method.	... 89

On 8-6-35, 36 head of crossbred animals were protected by serum-simultaneous method using goat-virus.

On 9-6-35, one Hallikar bull was vaccinated with goat-virus.

Serum sickness:—A few minutes after inoculation of serum, 8 Crossbred animals showed serum sickness with urticarial eruptions. One had a severe form of it exhibited by a subnormal temperature in addition to other symptoms.

Reactions:—(a) *Serum-Simultaneous Method*:—Among those protected by this method, 11 animals reacted between 4th and 7th day and 14 animals after the 7th day. Thus the percentage of reaction was 50.

Symptoms in reactors:—Dullness, off-feed, staring coat, fever (103.4 to 107°F), congestion of the buccal mucous membrane, slight ulceration, lachrymation, nasal discharge and in a few cases slight diarrhoea and vaginitis.

(b) *Goat virus-vaccination*:—The age of animals protected by vaccination was between one and three years. The dose of virus was 1 c. c. The number of reactors between the 4th and 7th day after vaccination was 63 and that after 7th day 39. The total percentage of reactors was 53.

Symptoms in reactors:—Similar to those of the Serum-simultaneous method.

Treatment of sick animals.—All those that reacted without diarrhoea were given cresol soapified and sodium chloride, affected eyes treated with boric lotion and vaginitis with antiseptic ointment. Most of the diarrhoea cases did not respond to cresol and acid sulphuric dil. Examination of dung from such cases showed ova of *Strongylus* species under microscope. These recovered after the treatment with copper sulphate and mustard.

N.B.—There was no mortality due to severe reaction by any method, and there was neither Piro nor Coccidiosis complications.

The camp was disbanded on 1-7-1935.

Strange Coincidences.—There was one case of Anthrax and one case of abortion in the inoculation camp.

i. *Anthrax*.—One Crossbred heifer, all of a sudden showed high temperature (107.0°F) on the 7th day. It was suspected for Piro. But the examination of blood smears showed Anthrax bacilli, and the animal died within a few hours. The disease was also subsequently confirmed by the Principal, Veterinary College, Madras.

ii. *Abortion*.—One Crossbred heifer, five months in calf aborted on the 14th day. As the animal was not one of the reactors the abortion may be due to some external violence, probably fight among the cattle.

CONCLUSION.

- i. Reaction in Goat-virus vaccination is comparatively milder compared with that in Serum-Simultaneous inoculation with bull-virus.
- ii. The percentage of mortality is practically nil and if there is any, it is negligible.
- iii. Occurrence of diarrhoea after a time may be due to either Coccidiosis or intestinal parasites, particularly of strongylus species.
- iv. Sudden rise of temperature may be due to resuscitation of Piroplasma or some specific disease.
- v. A microscopical diagnosis is always necessary in inoculation camps.

CAPRINE VARIOLA IN PROVINCE WELLESLEY VARUS (A BLOTCH ON THE FACE)

BY

A. R. KUPPUSWAMY, G.B.V.C., P.G., (MAD.),
Veterinary Inspector, Bukit Mertajam. P.W.

Source of infection.—Goat-pox has not hitherto been discovered in Malaya, the present outbreak being the first recorded.

The death rate proved to be as high as 53·96%.

The disease has been known to exist among sheep in Europe, Africa and India before the Christian era.

Sheep-pox was reported by Joubert in 1567 A.D. The disease is unknown in Australia. Most probably the disease was introduced into Malaya in sheep or goats imported either from India or Siam.

Goat-pox was introduced into Province Wellesley by the introduction of two infected kids purchased in the adjoining State. On 6th September, 1935, several cases were discovered at a place called Permatang To' Mahat. This disease was diagnosed as that of goat-pox and the writer has attempted to photograph the disease at various stages. As soon as the disease was diagnosed, the following notice was issued in English, Tamil and Malay and was distributed in the form of pamphlets in the affected area.

Measure taken to control the disease.—Until further notice all goats in this area must be kept tied up or in pens on their owners' premises.

2. No goat may be brought into or removed out of their owners' premises for any purpose whatsoever without the written permission of the Government Veterinary Surgeon.

PLATE No. 1:



Eyelids swollen, conjunctivae reddened. Muco-purulent discharge from the nose.

PLATE No. 2:



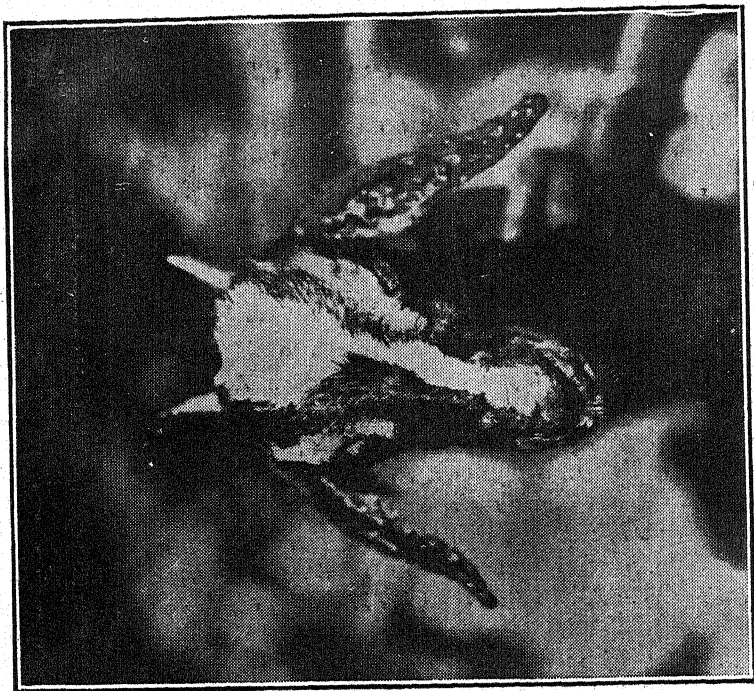
Roseola Variolosa (Red spots under the skin surrounded by urticarial Elevation).

PLATE No. 3



Legs swollen, hot and painful and the animal continuously lying down.

PLATE No. 4



(Stadium Papulosum) Vesicles are flat
On the surface and the subcutaneous connective tissue oedematous.

3. Proceedings will be taken against the owner of any goat found at large in contravention of this notification.

4. When a goat shows any of these symptoms it must be reported to the nearest Police Station, or to the Veterinary Officer :—

A thick mucous discharge from the nose, eruption of pox on the face, ears, udder, and abdomen, inside of forelegs, inside of thighs, under aspect of tail.

5. All infected goats should be well fed, and sheltered during damp, chilly weather.

(True copy) D. P. WHITE,
Government Veterinary Surgeon, Penang.

Those who disobeyed this order were summoned in Police Court and fined.

The area involved was 90 square miles and the number of goats in the scheduled area was 882 goats of which 739 were possible and actual contacts.

In all, 552 goats were affected of which 253 recovered, 297 died and two were destroyed. Other particulars are to be found in Table "A".

How the disease was disseminated.—It was mainly through actual contact in such places as common grazing grounds, communal system of housing and through human agencies, (attendants, owners and butchers) that the disease was disseminated. In this outbreak it was noticed that 17 goats which were housed in a separate shed on Rubber Estate marked "G" on the map, and looked after by a separate attendant, and which had not come in contact with the diseased animals, did not contract the disease, although the affected shed was only about 70 feet away.

Period of incubation.—Average period :—6.8 days.

Age and susceptibility.—Kids were found to be much more susceptible than adults. They became very ill and died during the early stages of the disease. The off-springs of those animals which became pregnant during the convalescent stage, were found to be immune to goat-pox. Many of the female goats which contracted the disease while in the later stage of pregnancy either aborted, or produced still-born off-springs or that expired soon afterwards.

The off-springs of healthy goats when exposed to infection invariably contracted the disease and died.

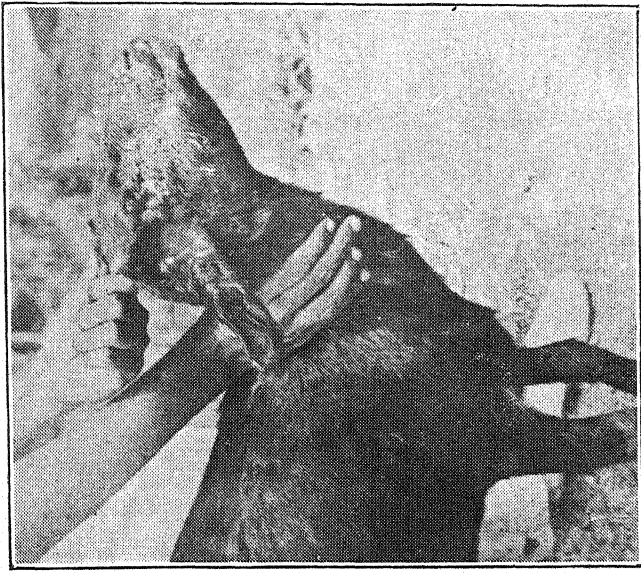
Susceptibility.—Only goats were found to be susceptible to this infection.

Symptoms.—At the commencement of the infection the animals were found to be dull and depressed, off-feed and the hair standing on end. The temperature varied between 104°F and 107°F. There was sneezing, cough, rapid pulse and increased respiration. Palpation on the lumbar region caused pain. The eyes showed marked conjunctivitis with muco-purulent discharge; there was photophobia and swelling of the eye-lids. Rhinitis was present with muco-purulent discharge. The skin of the cheeks showed red spots (erythematous) (photo No. 1.) A sort of sniffling respiration was observed in some of the animals. This stage lasted for about two to three days. In some of the animals, these red spots were surrounded by urticarial elevations (photo No. 2.) which were most noticeable in the vicinity of the eyes, on the cheeks, lips, nostrils, vulva, borders of the prepuce, the udder, scrotum, inside of the thighs, chest and on the abdomen. The legs were swollen, hot and painful and the animal was continuously lying down (photo No. 3.). The exhalations had a very disagreeable odour.

In two to three days' time, the red spots began to soften and increase in size becoming vesicles (Stadium Papulosum). These vesicles became flat on the surface and the subcutaneous tissue around became oedematous. (photo No. 4). On pricking, the serous contents of the vesicle oozed out slowly without causing collapse of the wall as they were multilocular, as in small-pox. In chicken-pox, the vesicles are unilocular, hence collapse completely on pricking. These vesicles further developed into pustules in two or three days' time, when it was noticed that the infiltration of the tissue round about became more intense, the head, neck and legs became swollen and the animal was continuously lying down. When the parts showing the lesions were kept clean and protected, the papules dried and scabs were formed in a few days, (photo No. 5) but usually when the lesions on the abdomen, udder and feet came in contact with dirt and wind as in uncleaned sheds, they often turned into suppurating foci and became even gangrenous. Deep ulcers developed at the line of demarcation, which were covered with scabs and crusts. In course of time these scabs dropped off, leaving cicatrices without pigment or hair (photos Nos. 9 & 10). If the goats were housed in sheds where the feet came in contact with wet, muddy and dirty places, the interdigital space and the coronary band got affected. The joint became enlarged and swollen due to septic infection. Such cases were noticed at Permatang To' Mahat and on Rubber Estate marked "F". In all there were seven such cases with two fatalities and four with deformity of the foot accompanied by permanent lameness.

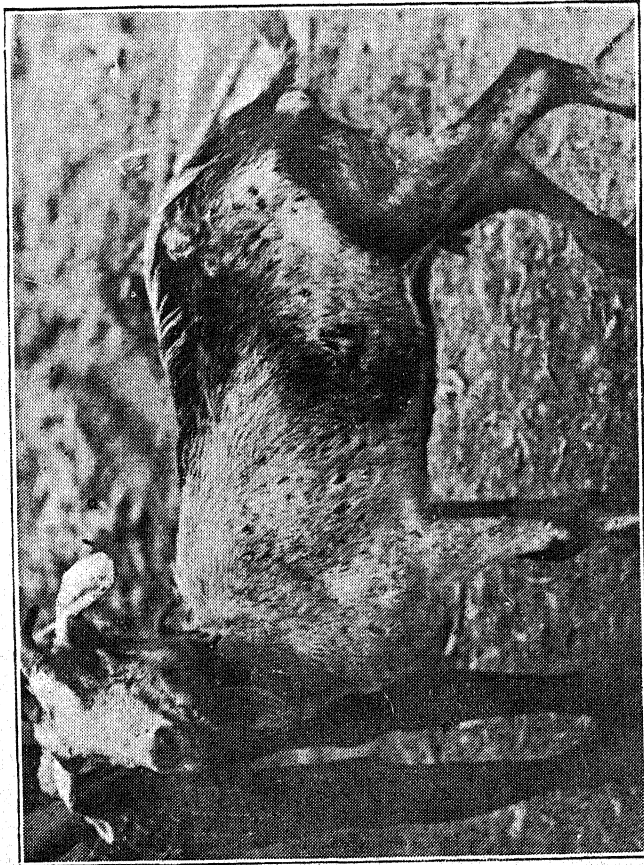
In Rubber Estate marked "C" two cases of Keratitis were noticed resulting in subsequent blindness of both eyes. In Rubber Estate

PLATE No. 6



Severe conjunctivitis with ulceration and break-down of cornea which led to atrophy of the bulb.

PLATE No. 5



Stadium crustum, S. Exsiccations (vesicles dried into thick brown scabs).

PLATE No. 8



Variola confluent at many places of the head, so much so, the skin and the subcutaneous connective tissue became greatly oedematous, so that the head appears greatly deformed.

PLATE No. 7



Due to rubbing on account of itching, the vesicles are ruptured, and marked oedematous swelling on the head.

marked "D", a goat developed conjunctivitis in one eye resulting in necrosis of the cornea and atrophy of the bulb (photo No. 6). Four animals effected with pox developed gastro-intestinal symptoms; there was profuse diarrhoea and the animals were continuously lying down. All these animals died. At times, due to the animal rubbing itself against some hard object, severe dermatitis developed at the places of ruptured vesicles (photo No. 7).

When pox eruption appeared very close together, they often became confluent (Variola Confluent) and when this occurred in many areas, the neighbouring skin and subcutaneous connective tissue became greatly cedematous, so that the head for instance, became greatly deformed (photo No. 8). All such cases developed general Septicaemia or Pyaemia, and died. In several cases, death was hastened due to the papules developing on the mucous membrane of the mouth, pharynx and nose, the development of the papules preventing the animals' feeding and also interfering with respiration.

During scab formation, the animal was noticed to rub itself against convenient objects either against its own leg or partitions or trees due to intense pruritis. This caused open ulcers, and at times the whole face, legs and certain parts of the body were covered with sores, some even exposing the facial bones. The affected animals were often seen grinding their teeth with pain and constantly lying down owing to the feet being affected. Respiration was laboured and was through the mouth. In some cases the affected parts of the skin turned into ulcers which became covered with a dirty mass, and some other parts of the skin became gangrenous, forming dirty brown masses. Gangrene was seen to extend to the ears with the result that a portion of the ear was lost (Gangrenous-pox).

This occurred in two cases in Rubber Estate marked "C".

Some goats which recovered, showed bald patches, and the skin appeared as if the animal was affected with some sort of eczema (photo no. 11).

Course.—The course of the disease was variable. In the same herd, some had a mild attack with a few pox marks on the face and body and recovered in about three to four weeks. In the severe form, the disease lasted from about four to six weeks. In cases where complications had set in, recovery was frequently delayed for from 6—8 weeks.

Diagnosis.—Acute rise of temperature before development of local lesions. The lesions running through the characteristic 5 stages of Variola.

Differential Diagnosis.—(a) Contagious Pustular Dermatitis of sheep and goats. In this the lesions are confined to the mouth, lips and the outside of the upper and lower lips. The lesions are massed together, no pox marks on the body are to be seen and there may be slight or no fever.

(b) Contagious Pleuro-Pneumonia—cough, fever, discharge from the eyes and nose, hydro-thorax, consolidation of the lungs, pleurisy and fibrinous deposits. No pox marks on the body, and on post-mortem no pox nodules on the lungs are to be found.

(c) Scabies—In this the mites can be seen microscopically.

(d) Foot and Mouth Disease in goats and sheep and also pustular eczema can be mistaken for goat-pox.

Microscopical Examination.—Microscopical examination of blood smears and material from vesicles and sections from the lung pox nodules and kidney and stained by Gram's and Haematoxylin's method failed to reveal Prowazek's Elementary Bodies.

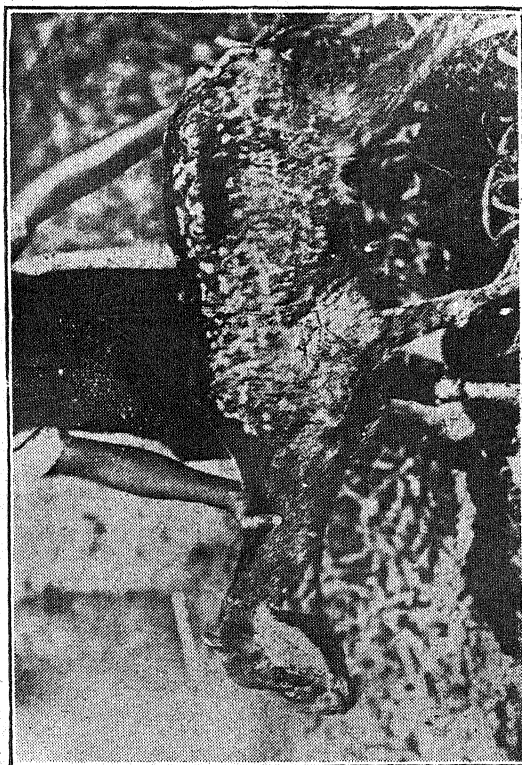
Prognosis.—In this outbreak there was a heavy mortality (53.96%) due chiefly to a series of unfavourable circumstances *viz.* insufficiency of nourishing food, lack of proper attention and inclement weather etc.

The disease broke out during the monsoon season and the places where these goats were housed were all low-lying lands. These places were constantly flooded and were in a perpetually muddy state. The majority of the goat owners were labourers who were out almost all day working on the estate, hence they could not find time to feed and nurse their animals. The goat owners at Sungei Acheh and Sungei Bakau were mostly Malays. As this was a paddy planting season, they were all working in the fields, hence their goats were not given sufficient attention.

The majority of the goat sheds were crowded constantly in a dirty state. At places where better sanitary conditions prevailed and where goats received the necessary nursing and care, the death rate varied from zero to 50%. At Permatang To' Mahat, a woman had 18 goats and kids, they were housed in two over-crowded and ill-ventilated pens which were constantly dirty; but she nursed the animals and fed them with milk from the bottle. The disease first appeared amongst her animals on 25th November, 1935, and ended on 7th February, 1936, when only three goats and two kids survived.

Post-mortem Appearances.—They were not constant as the animals died even in the convalescent stage. At times one and the same animal showed all the stages—papules, vesicles and pustules. Repulsive odour was noticed in all the animals on opening up the car-

PLATE No. 10.

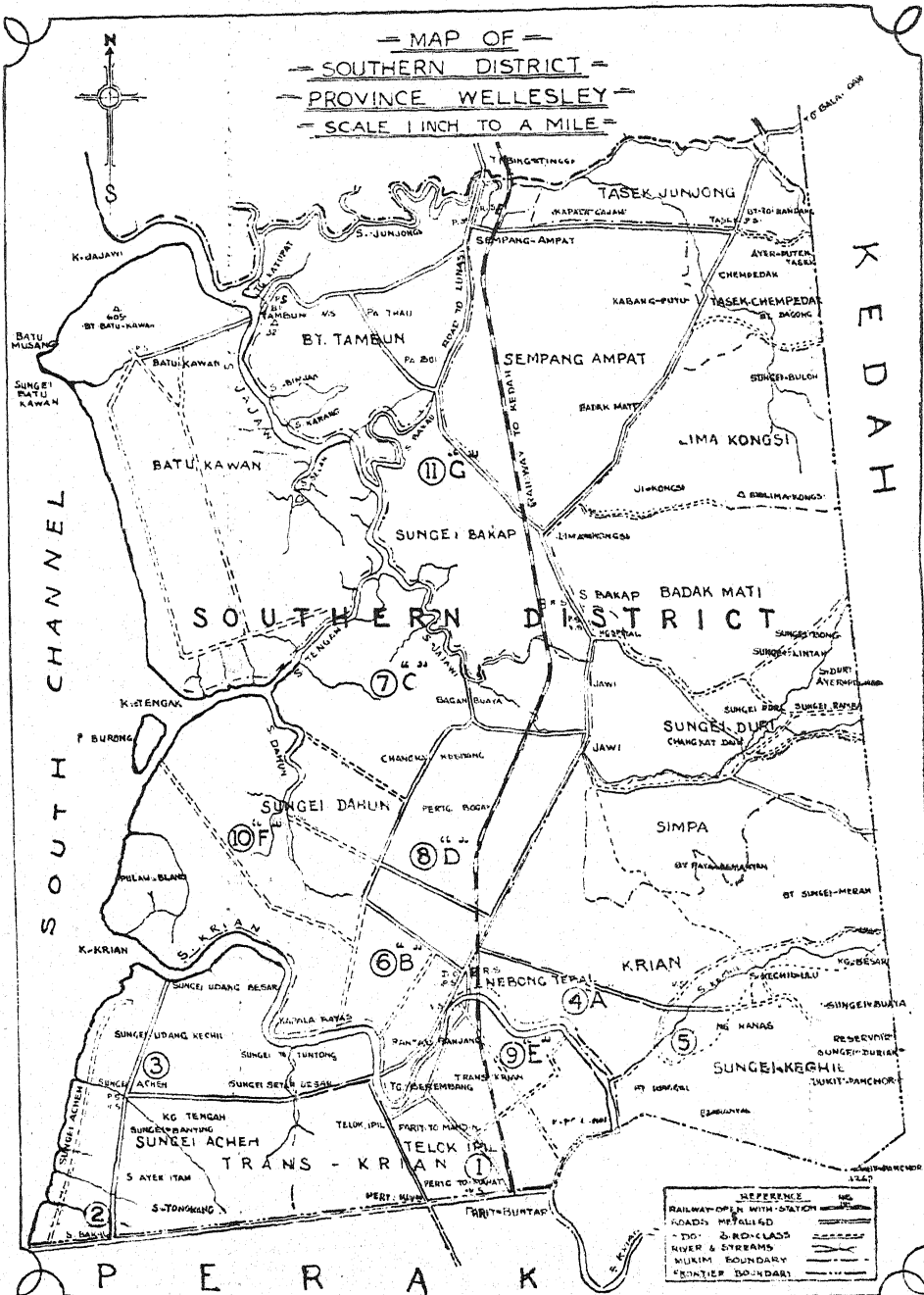


Cicatrices without pigment of the affected part (Hair clipped off) of the body.

PLATE No. 9



Cicatrices without pigment of the affected part. (Face)



The serial numbers I-2-3-4-5-5-6-7-8-9-10 & II show the route taken by the disease to spread. The alphabets A-B-C-D-E-F & G are the rubber estates where the disease occurred.

cases particularly those of the more emaciated ones. One could even detect the existence of this disease in a shed as soon as he entered it by the characteristic disagreeable odour in the shed. In some, the pustules were generalised all over the body. Pox nodules were noticed in several cases, particularly in the lung near the pleura. The lungs were congested. The nodules were grey. There were haemorrhagic infiltrations of the mucous membrane of the air passages. Those animals that had persistent diarrhoea showed gastro-enteritis. The sub-maxillary, parotid and intestinal lymph glands were swollen and congested. As certain Text Books state, Goat-pox is a benign condition, the rather heavy-mortality which occurred in this outbreak must be due, very largely anyhow, to the following 'unfavourable conditions which apply generally to the area affected during this outbreak.

(1) The monsoon occurred at the same time as the outbreak of goat-pox.

(2) The owners of the goats were poor Malays and Indian Estate labourers, and the latter were out at work during the day. As this was the paddy planting season, the former were out planting paddy during the day. Both these classes of people reared goats as a side industry and never took to it seriously.

(3) The goat sheds were erected at the worst possible sites, and the sheds and pens where these animals were housed were seldom clean.

(4) The sick animals received very little treatment and nursing from the owners for reasons stated in No. 2.

(5) Animals died even in the convalescent stage owing to want of proper fodder, the field being flooded during the monsoon.

Treatment. Some owners treated their animals externally. None of them received any internal treatment. The Malays consulted their Bomohs (Charmers) who chanted prayers and used leaves and herbs with little or no effect. Some mixed wet rice and morgosa leaves, made into a paste, which they applied to the lesions. The Indians who use morgosa leaves in case of human pox, as an antiseptic used either the leaves or the oil and added camphor, in treating their affected goats.

In one case five goats and three kids were placed in a pen on high dry ground, the lesions were dressed with morgosa oil to which cocoanut shell carbon was added. The shed was maintained in a proper sanitary condition. All the animals were fed with rice conjee and properly looked after, with the result that all recovered.

Conclusion and Summary. (1) The disease affected the contacts in the same herd slowly, as animals in the same shed were affected one by one at intervals of 6 to 8 days.



(2) When recovery took place it was also slow, solely due to complications caused by the insanitary conditions of the sheds, and surroundings generally.

(3) The animals died at all stages of the disease even before the urticarial stage developed, or even when the animal was in the convalescent stage.

(4) The high rate of mortality was mainly due to the lack of nourishment, care and sanitary conditions of the overcrowded goat-sheds, and the surroundings, coupled with the outbreak of the monsoon, rather than to the virulence of the virus.

(5) More kids died of the disease than adults solely due to lack of vitality.

KEY TO THE MAP.

The serial numbers 1—2—3—4—5—6—7—8—9—10—and 11 show the route taken by the disease to spread.

The alphabets—A—B—C—D—E—F—and G are the Rubber Estates where the disease occurred.

ACKNOWLEDGEMENTS.

I am greatly indebted to Captain D. P. White M.R.C.V.S., Government Veterinary Surgeon, Penang, for correcting and permitting me to publish this paper.

Thanks are also due to Mr. A. Joseph, Government Veterinary Inspector, Butterworth, who was in charge of the outbreak at the beginning.

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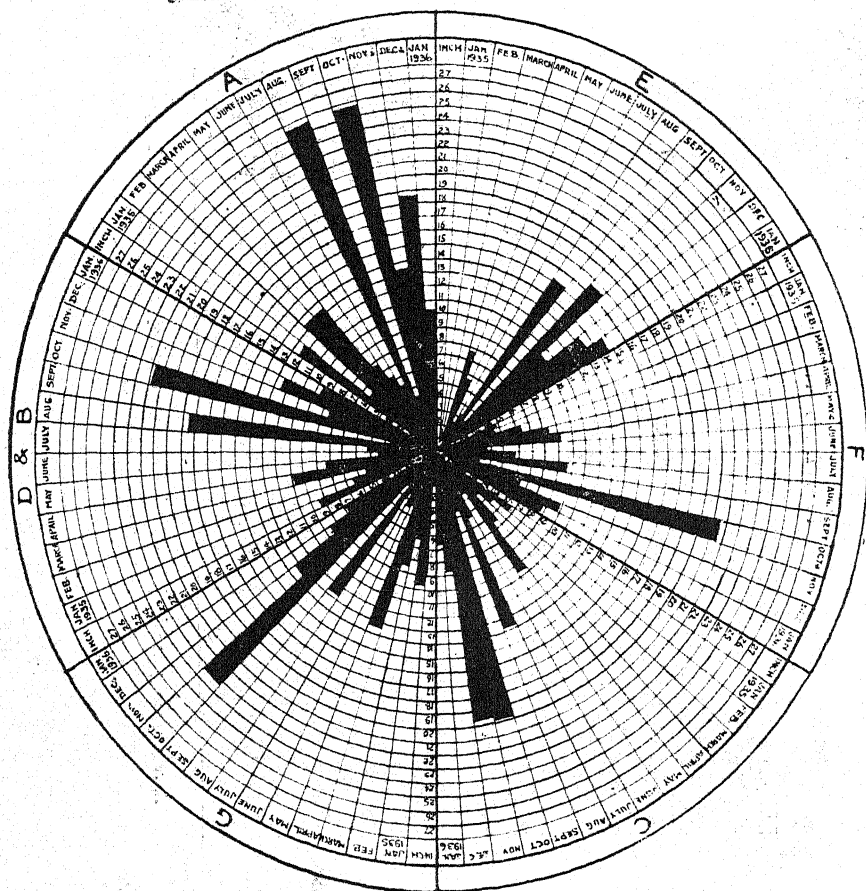
PLATE No. II



A recovered goat which had its hair dropped and appeared as if suffering from skin disease.

PLATE No. 13

RAINFALL GRAPH
OF
ESTATES AFFECTED WITH GOAT - POX



NOTE: "AN INCH OF RAIN" MEANS A
GALLON OF WATER SPREAD OVER
A SURFACE OF NEARLY TWO SQ. FT.
OR 3,632 CUBIC FT. = 100 TONS
UPON AN ACRE.

TABLE "A".—GOAT POX.

No.	Place.	Total No. of Goats before infection.	Total No. of Goats affected.	Total No. of Goats recovered.	Total No. of Goats that either died of disease or destroyed.	Duration of the disease.	Percentage of recovery.	Percentage of mortality.	Remarks.
1.	Permatang to Mahat.	34	34	17	17	From 5-9-35 to 7-2-36 (5 months and 2 days.)	50	50	Sanitary conditions anything but desirable. Some goats were housed in pens. The area is a low lying land and is always wet and gets flooded during the Monsoon.
2.	Sungei Bakau.	103	95	48	47	From 21-9-35 to 20-12-35 (2 months & 29 days.)	50.52	49.48	Goat sheds erected in the paddy fields and by the side of earth drains. These places are always wet and flooded during the Monsoon.
3.	Sungei Acheh.	183	180	88	92	From 1-10-35 to 6-12-35 (2 months & 5 days.)	44.44	55.56	Conditions same as for Sungei Bakau.
4.	Rubber Estate "A".	111	48	19	29	From 13-10-35 to 17-1-36 (3 months and 5 days.)	37.91	62.09	Goat sheds erected on low lying locality and the place is always wet and muddy. Sanitary conditions anything but desirable.
5.	Sungei Kechil.	98	71	20	51	From 13-10-35 to 6-1-36. (2 months and 24 days.)	28.17	71.83	The places were constantly flooded due to the river overflowing. The sanitary conditions of the goat sheds were bad.
6.	Rubber Estate "B".	42	35	12	23	From 16-10-35 to 13-1-36 (2 months and 21 days.)	34.00	66.00	Communal system of housing goats on cemented flooring. The flooring and the surrounding drains were constantly in a dirty condition.

No.	Place.	Total No. of Goats before infection.	Total No. of Goats affected.	Total No. of Goats recovered.	Total No. of Goats that either died of disease or destroyed.	Duration of the disease.	Percentage of Recovery	Percentage of Mortality	Remarks.
7.	Rubber Estate "C".	44	15	2	13	From 10-10-35 to 5-12-35. (2 month & 16 days.)	13.33	86.67	Goats housed in all ventilated pens. The land was constantly wet and muddy.
8.	Rubber Estate "D".	46	40	20	20	From 22-10-35 to 18-12-35. (1 month & 17 days.)	50.00	50.00	Same as that of Estate "B."
9.	Rubber Estate "E".	35	27	23	4	From 22-10-35 to 3-1-36. (2 months and 12 days.)	85.19	14.81	The disease was reported after several deaths had taken place. The sanitary conditions of the goat sheds and the locality were good.
10.	Rubber Estate "F".	12	3	2	1	From 6-12-35 to 6-1-36 (1 month).	66.66	33.34	The disease was reported after several deaths had taken place. The goat shed was in a dirty state and ill-ventilated. The land is muddy and wet during the Monsoon.
11.	Rubber Estate "G".	31	4	2	2	From 16-12-35 to 6-1-36. (21 days.)	50.00	50.00	The disease was reported after several deaths had occurred. The sanitary conditions of the goat shed and the surroundings were good.
GRAND TOTAL :		739	552	253	299	From 5-9-35 To 7-2-36. (5 months & 2 days.)	506.41 (Average per 46.04)	593.59 (Average per.) 53.96	

**VETERINARY MEDICINE AS TAUGHT AT THE KANSAS
STATE COLLEGE OF AGRICULTURE AND APPLIED
SCIENCE, MANHATTAN, KANSAS, UNITED
STATES OF AMERICA**

BY

GOPAL SINGH RATHORE, G.V.Sc., D.V.M. (KANS).

In the U. S. A. there are ten Veterinary Colleges, all of which are maintained by the several States in which they are located and indirectly by small appropriations from the Federal Government. All of the Veterinary schools are affiliated with State Colleges or universities as sub-divisions known as Veterinary colleges, schools or divisions. In Kansas it is known as The Division of Veterinary Medicine. At the present time there is a movement on foot to rank the Veterinary schools according to their qualifications, such as "Grade A, B, C". It is expected that the Division of Veterinary Medicine, Kansas State College, will be placed in Grade A.

The Kansas State College is divided into five divisions, known as The Division of Agriculture, The Division of Engineering, The Division of Home Economics, The Division of General Science, and The Division of Veterinary Medicine. All of these Divisions are so interrelated that students may study courses that may be required or not required in any of them.

The Division of Veterinary Medicine, Kansas State College, was organized in 1905, and grants the degree, "Doctor of Veterinary Medicine" (D.V.M.) to its graduates. Since 1905, it has made very rapid progress, graduating 495 students nearly all of which entered the profession in one of its various activities throughout the world.

Dean of the College: The Kansas State College of Veterinary Medicine is under the leadership of Dr. R. R. Dykstra, who is a very high class gentleman of very high qualities and qualifications. He is internationally known in the field of Veterinary Medicine because of his leadership, devotion and many contributions to the profession. The progress this college has made is largely due to his efforts. He has built it up from a small institution to one of the highest rank in the country.

Faculty: The faculty is made up of sixteen full-time professors, who are graduates of the various veterinary colleges and, in addition, hold numerous advanced degrees. Numerous highly qualified professors of other divisions teach veterinary students related subjects in Agriculture and the Sciences, such as: Animal Husbandry, Dairy Husbandry, Dairying, Dairy Inspection, Poultry Husbandry, Poultry Diseases, Immunology, Botany and Medical Botany.

AGRICULTURAL

Chemistry, Parasitology, Zoology and Embryology, Rhetoric, the languages and many others.

The Veterinary Division is divided into four departments as follows:

- I. Department of Surgery and Medicine.
- II. Department of Anatomy and Physiology.
- III. Department of Pathology and Histology.
- IV. Department of Veterinary Research.

All of the departments have their respective heads and all are under the direct supervision of the Dean (principal) who also co-ordinates the activities of the Veterinary Division with the other Divisions of the college. The Dean is directly responsible to the President of the College.

Buildings:—The Veterinary Division is housed in one large three-story stone building called Veterinary Hall. It has numerous spacious class rooms and several well equipped laboratories for the practical and theoretical teaching of Veterinary Medicine to the students. The building also houses the Department of Bacteriology of the Division of General Science. Another large two-story stone building called the Veterinary Hospital is very well equipped and modern in all respects, in addition to class rooms it is equipped with a laboratory, large and small animal wards for its patients, an x-ray room completely equipped, an electrically operated, large animal operating table and numerous other equipments. As stated previously, the students also have access to other buildings including a very modern and complete library where they may further their studies.

In addition, there is almost completed a new unit known as the Veterinary Research Laboratories. It is a two-story brick building with many well constructed sheds and barns. The two-story brick building has offices and fully equipped laboratories. There are such conveniences as natural gas for heating, high pressure steam, hot and cold running water, ample refrigerating service, etc. The entire plant is self-operating and is the most modern that can possibly be constructed. The group of buildings will be used purely for research regarding animal diseases by the veterinary staff.

Admission Requirements:—In the years preceeding 1935, the college admitted students who had graduated from a recognized high school with certain required course credit, a total of fifteen credits being necessary for admission. During the past few years Students from states other than Kansas have increased the enrolment to such a point that it was necessary to place further restrictions upon admission. Some of these are as follows:

1. Limiting the enrolment to 200 students in the upper four years.

2. Advancing only those students with the highest scholastic standing to the next year.

3. Kansas students are to be given first preference, students from states having no veterinary colleges are to be given second preference and students from states having veterinary colleges are to be given third preference. High school scholastic standings will also be taken into consideration.

The above rules are not applicable to foreign students and graduates from foreign veterinary colleges.

Courses:—The Kansas State College of Veterinary Medicine offers a five-year course after completion of which the degree of Doctor of Veterinary Medicine is conferred (D. V. M.).

The college year is divided into two semesters of 18 weeks each and a summer school of 9 weeks. The summer school in this country so far as Veterinary Medicine is concerned, is for those students who have for some reason become irregular and wish to become regular. Some students may be allowed to take advanced work during this period, but it is much preferred that they spend their summer vacation under the tutorship of a good practitioner.

Subjects for the several years are arranged as follows :

First year or Preveterinary year :

English.....	5 or 6 Sem. Hours
General inorganic chemistry.....	10 " "
Zoology or biology.....	5 " "
Military science (not foreigners)	2 " "
Optional courses.....	9 to 15 " "

Second year or Freshman year :

FIRST SEMESTER		SECOND SEMESTER	
Anatomy I	... 4 Sem. Hours	Anatomy II	... 8 Sem. Hours
Histology I	... 4 " "	Histology II	... 3 " "
General organic chemistry	... 5 " "	Pathogenic Bacteriology I	... 4 " "
Medical botany	... 2 " "	Military Sci. II	... 1 " "
Physical Education R	" "	Physical Education R	" "
Military Sci. I	1 " "		

Third year or Sophomore year :

FIRST SEMESTER		SECOND SEMESTER	
Anatomy III	... 4 Sem. Hours	Pathology I	... 5 Sem. Hours
Comparative Physiology	... 4 " "	Comp. Physiology II	... 4 " "

El. of Anim. Hus-				Poultry Husban-			
bandry	... 3	"	"	dry	... 2	"	"
Immunology	... 4	"	"	Feeds and Feeding	3	"	"
Dairy cattle judg-							
ing	... 1	"	"	Dairy Inspection...	2	"	"
Military Sci. III	... 1	"	"	Military Sci. IV	... 1	"	"
Physical Educa-				Physical Educa-			
tion	... R	"	"	tion	... R	"	"

Fourth year or Junior year :**FIRST SEMESTER**

Surgery I	... 5 Sem. Hours
Materia Medica	... 4 " "
Pathology II	... 4 " "
Parasitology	... 3 " "
Clinics I	... 2 " "

SECOND SEMESTER

Surgery II	... 5 Sem. Hours
Dis. of large Ani-	
mals	... 5 " "
Pathology III	... 3 " "
Therapeutics	... 3 " "
Clinics II	... 2 " "

Fifth or Senior year :**FIRST SEMESTER**

Dis. of Large Ani-	
mals II	... 5 Sem. Hours
Dis. of Small Ani-	
mals	... 2 " "
Surgical Exercises.	1 " "
Meat Hygiene	... 3 " "
Pathology IV	... 3 " "
Clinics III	... 4 " "

SECOND SEMESTER

Inf. Dis. of Large	
Animals	... 5 Sem. Hours
Obstetrics and	
Breeding Diseases	5 " "
Poultry Diseases	.. 2 " "
Medical Econo-	
mics and Law..	2 " "
Clinics IV	... 4 " "

Electric courses to study in the event a Master's Degree is desired in Veterinary Medicine (M. Sc.).

Vaccine Manufacture I and II	... 2 to 4 Sem. Hours each
Special Histology	... 3 " "
Pathological Tech. and Diag. I & II	2 to 4 " " "
Special Anatomy	... 2 to 4 " "
Applied Anatomy	... 2 to 4 " " "
Research in Pathology	... 3 to 9 " "
Research in Medicine	... 3 to 6 " "
Research in Surgery	... 3 to 6 " "
Problems in Physiology	... 3 to 6 " "
Animal Nutrition Seminar	... 3 to 6 " "
And many other subjects in other Divisions.	

Evaluation of semester hours :

In the United States subjects are given a credit based on weekly hours. Suppose a lecture subject is taught for 5 hours a week for a whole semester and suppose you enroll in this subject, attend classes regularly and receive a passing grade. Then you will receive 5 semester hour credits in the subject. For each semester credit in laboratory classes you must attend one 3 hour laboratory period a week for the entire semester in addition to passing the required work.

Examinations :

Like our colleges, examiners are not different from the teachers and therefore are not called from the outside. Students rely on their teachers to be examined, and it is entirely up to the teacher to examine his students at any time he wishes. Some teachers examine at every class period, some once a week, some once a month, and some at the five week period, nine week period and eighteen week period. A final examination either written or oral, is usually given at the close of each semester and summer school in the respective subjects. The final mark or grade is computed in several ways, such as, 1, an average of all grades, 2, an average of the five week, nine week and eighteen week grades, and 3, a certain value may be placed upon daily grades, five week, nine week, and eighteen week grades and the whole summed.

The final grade is then sent to the Registrar for recording, where a permanent record is kept for all students. A student's record may be examined at any time and copies of it may be obtained upon request. The passing marks are high as compared to our country, for example the minimum requirement is 70 per cent for passing and 77 per cent for graduation. I feel, however, that any student who can make an average of 45 to 50 per cent in Indian schools can also meet the requirements here.

Grades are recorded according to letter as follows :

95 to 100 %	..... A	..... Excellent
86 to 94 %	..... B	..... Good
76 to 85 %	..... C	..... Fair
70 to 75 %	..... D	..... Pass
68 to 70 %	..... Con	..... Condition
67 or below	..... F	..... Failure

For graduation one must have an average grade of "C" in all subjects, otherwise, further study must be pursued.

Expenses :

The cost for a foreign student to enroll in this college would be some where between \$ 80'00 and \$ 100'00 per month. This should

include all his fees, books, board and room, clothes, laundry, shows and every other necessary expense.

Requirements for Indian students to enter Veterinary Colleges:

Indian students with advanced credit (college subject credit from Indian colleges) are accepted into Veterinary Colleges of the United States according to the number of acceptable credits that they have earned in the Indian colleges. Indian students expecting to enroll in a Veterinary College of the United States should obtain from their college a complete transcript of all their college subjects and grades. This should be sent to the respective head of the Veterinary College in which he wishes to enroll, who will evaluate his credits and send him the information as to how many years will be required to complete the college work and graduate from the college. For example if you have three years of acceptable college credits you may complete the work here in two years, or if you have two years of acceptable credits, three years will be required to complete the work for a degree. In case you wish to earn a master's degree, one or two more years of study will be required.

When considering the United States for advanced education it may also be well to solicit the United States Bureau of Education Department of Interior at Washington D. C. for information. They may be able to supply you with much needed information. Because of the foregoing statements I would recommend Indian graduates to come to study in the United States rather than in any other country. Also for the following reasons: first, your advanced credits will be given full consideration; second, veterinary science is farther advanced than in other countries; third, to learn about and to see this wonderful country and meet its people; to see the progress it has made in every line during its short existence.

VETERINARY EDUCATION IN JAPAN.

BY

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AND

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All the schools in Japan, public or private, are controlled and governed by the Department of Education. In Japan, there are 5 universities, each maintaining Faculties of Law, Economy, Engineering, Literature, Science, Medicine and Agriculture. Out of

these only two, i.e., the Tokyo and Hokkaido Imperial Universities have Veterinary Sections belonging to the Faculty of Agriculture. The courses of veterinary education at both these places run over a period of three years. At Tokyo each class has 25 students and at Hokkaido only 7. The following shows the syllabus of courses assigned to each class:—

First Year Class.

<i>Lectures and Practical Classes</i>			<i>Hours per week.</i>	
			<i>Summer</i>	<i>Winter.</i>
Histology Lectures	...	...	2	...
do. Practical Classes	...	...	8	...
Physiology Lectures	...	...	4	3
Anatomy Lectures	...	...	5	3
do. Practical Classes	...	...	3	17
Embryology Lectures	...	...	1	...
do. Practical Classes	...	...	3	...
General Pathology	...	...	4	...
Shoeing Lectures	...	...	1	...
do. Practical Classes	...	...	4	...
Hippology Lectures	...	...	2	2
Biological Chemistry (General) Lectures	...	...	2	2
Bacteriology & Immunology (General) Lectures	...	...	...	2
Soil, Lectures	...	...	...	3
Parasitology	...	...	...	3
Practical Hereditology	...	...	...	2
Domestic Animal Production	...	...	...	3
Total			39	40

Second Year Class.

<i>Lectures and Practical Classes</i>			<i>Hours per week.</i>	
			<i>Summer</i>	<i>Winter.</i>
Special Pathology	...	...	3	4
Special Bacteriology & Immunology	...	...	4	...
do. Practical Classes	...	...	...	10
Domestic Animal Production	...	...	2	...
Surgery Lectures	...	...	4	5
do. Practical Classes	...	...	2	3
Pharmacology Lectures	...	...	3	3
Pharmacology } Physiology } Medical Chemistry }	Practical Classes		17	...
Internal Medicine	...	...	2	4
Political Economy	...	...	4	...

				<i>Hours per week.</i>	
				<i>Summer</i>	<i>Winter.</i>
<i>Lectures and Practical Classes</i>					
Animal Products' Manufacture	...	...	...	...	2
Crops	...	...	...	...	3
Chemistry of Nutrition	...	...	...	...	2
Pathological Anatomy & Histology	Practical				
Classes	...	...	...	...	7
Total				41	43

Third Year Class.

Hippology, Practical Classes	...	...	4	...	
Crops	...	...	2	...	
Infectious Diseases	...	...	3	...	
Surgical Diagnostics	Practical Classes	...	2	...	3
Pathological Anatomy	} Practical Classes	...	7	...	
& Histology		...			
Hygiene	...	...	3	...	3
Internal Diagnostics, Practical Classes	...	...	6	...	6
Obstetrics	...	...	3	...	
Hygiene for Milk & Meat, Lectures	...	...	3	...	
do. Practical Classes	...	...		...	15
Police & Administrative Law	...	...		...	2
Medical Jurisprudence	...	...		...	1
Total				33	30

Each year of training is divided into two terms—Summer and Winter. At the end of each term an examination is held, so that there are two examinations in each year. At the end of the third year the students must produce 'a graduating essay' or a "Thesis" with the aid and guidance of the supervising professor to earn the Degree of Bachelor of Agriculture (Veterinary).

In Japan, after finishing the Higher School education the students join the university wherefrom they graduate when about 22 years old on an average. They, then, join the Veterinary Section of the Faculty of Agriculture and graduate after 3 years when about 25 years old in the ordinary way.

In addition to the above, there are in Japan 5 public agricultural Colleges, two of which impart veterinary education. Each entertains about 30 students in each of the three classes; and the students join these colleges after finishing their Middle School education, so that they can graduate at about 22 years of age.

Furthermore, there are three private veterinary colleges in Tokyo each of which entertains from 100 to 200 students in each of the classes. They also finish the whole course of instruction in about 3 years time.

It may be observed that the syllabus of lectures and practical classes followed at all veterinary institutions (those connected with the universities and private colleges) is almost identical, with this difference that at the universities the training given is not always as much practical as theoretical. Here the students are required to equip themselves for research work and to learn from foreign books, such as those in German, French and sometimes English. At other colleges students are mainly taught practical work in Japanese language and sometimes in English; and, as soon as they have finished their course of instruction they can attend to the ordinary duties of a veterinary surgeon and carry out routine laboratory work connected therewith.

In addition to the above-mentioned graduates from the colleges and the universities there is in Japan another class of the so-called "low-levelled" veterinarians. Finishing their common school education at about 15 years of age the students can attend public or private primary agricultural schools of which there are about 150 in the country and 7 of which have veterinary courses. This course of training also entitles the students to obtain a licence for the practice of veterinary medicine and surgery. It is now-a-days, however, felt that veterinarians should possess advanced training and better basic general education, and it is hoped that this method of obtaining a licence for practising as veterinary surgeons will be abolished from 1938.

It may be said in passing that, as in India, no woman has so far earned the licence for the practice of veterinary medicine and surgery in Japan.

In the ordinary way all qualified veterinary surgeons from the different colleges and the universities have an official recognition to practice as farriers, but the farriers' licences are also established for those who could not finish the full course of veterinary education. Another way to obtain a farriery licence is through the military authorities. Soldiers who wish to be farriers may be specially educated at the cavalry, artillery or transport corps, and on leaving the army they may obtain the approval of the military to practise as farriers.

MEAT INSPECTION.

BY

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AND

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In India very little interest has been bestowed on matters relating to handling, sanitary production, cleanly distribution and general control of food consumed by human beings. This is particularly so in the case of meat. Maintaining a clean and wholesome food supply in any locality or province is as important a problem in social economy as it is in general sanitation and public health. A large quantity of meat is consumed in this country and this factor alone should force public health officers to pay more attention to a clean supply of wholesome meat. Unfortunately the voice of the Indian public is seldom heard regarding this. It is the duty of Public Health Department to take proper measures. There are a number of diseases communicable to man from animals through meat. To prevent this danger it is necessary that some authority be entrusted with the duty of advising, examining and reporting on meat for sale to the public. In other words the public must have meat which is wholesome, nutritious, and free from such diseases which are communicable to man through it.

Meat inspection is an important branch of public health work. Any system of meat inspection should be antimortem and also postmortem. The meat inspector should have supervision and control over the management of both public and private slaughter houses, meat markets and other industries, connected with meat. The State should lay down rules, or enact Laws for humane slaughter of animals. It should also include instructions for hygienic construction of slaughter houses and meat markets.

The inspection of meat at present is carried out only by a joint effort of sanitary and municipal authorities, but these methods are inadequate. There appears to be no uniformity at present in the provinces regarding the system of meat inspection or control over its sale. Private and unrestricted slaughter houses and meat shops exist all over the country with no control over them and these privileges to certain people should be discouraged.

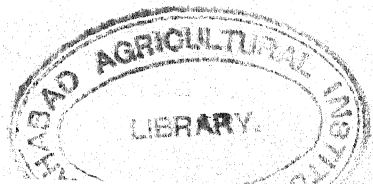
The chief object of meat inspection is to find out the wholesomeness or otherwise of flesh and thus to protect man against the dangers

of eating bad meat and its consequences. It must ensure the public that the meat issued will not cause meat poisoning. It should also help the public from buying inferior meat at higher rates. Butchers some times buy meat of low quality and sell the same at full market rates. The inferior quality meat is often diseased and may be unfit as food or may be dangerous to health. One must employ a Veterinarian to differentiate between wholesome and unwholesome meat as he knows exactly what he has to do and naturally such a man is and should be more efficient ordinarily than a Sanitary Inspector and the like.

SOME CONDITIONS WHICH RENDER THE FLESH UNWHOLESOME.

The conditions which render the flesh unwholesome are :—

1. Diseased conditions caused by animal parasites in the edible parts which are pathogenic to man such as *Trichina spiralis*, *Cysticercus bovis*, *C. cellulosae* etc.
2. Diseased conditions caused by bacteria pathogenic to man such as Anthrax, Tuberculosis, Actinomycosis, Glanders, etc.
3. Presence of poisonous substance in flesh such as :—
 - (a) Bacterial poisons or toxins generated in the living body by pathogenic organisms or produced postmortem by putrifactive bacteria.
 - (b) Mineral or vegetable poisons introduced in the living animals or in cases after death to the flesh as preservatives.
4. Structural alterations that render the organs or flesh unsightly or repulsive in appearance. This includes extensive tumours, fractures, mechanical injuries, wounds, bruises and some parasitic conditions, such as liver flukes.
5. Conditions that render flesh in-nutritious such as emaciated flesh. In such cases flesh does not contain enough fat and proteins.



Clinical Articles.

A CASE OF OSTEOMA IN A BULLOCK.

BY

K. MALLIKARJUNA RAO,

Veterinary Assistant Surgeon, Draksharam, East Godavari District.

Subject :—A bullock, 7 years old, in good condition.

History :—The animal was purchased by the present owner, a ryot of Gollala Manlidada, Cocanada taluk, in a shandy about a year back when nothing abnormal was observed. About 4 months back the animal began to sneeze but the owner did not take to any professional aid then. From about a month a growth was observed in the left nostril and the left side of the nostril was seen bulging out. The owner had it branded on the region of the swelling. Subsequently the owner thought that the growth was gradually enlarging, so he brought the animal for treatment to this dispensary on 20-4-36.

Symptoms :—I examined the animal on 20-4-36 and found a bony growth in the left nostril ulcerating at the lower end. The growth filled the whole of the left nostril and the animal could not breathe comfortably through it. I could not even introduce my finger into the nostril. The side of the left nostril was bulging out from about 4" below the inner canthus of the left eye. The swelling was very hard to the touch.

20-4-36 :—I attempted to scoop out the growth but as it was very hard I could with difficulty remove only $\frac{1}{2}$ " of the growth.

21-4-36 Morning :—As it was thought impossible to scoop out the growth an incision about 4" long was made on the side of the nostril and an attempt was made to saw out the growth with a wire saw, but for want of a suitable saw no progress could be made.

21-4-36 Evening :—I again attempted to remove the growth. The incision was enlarged downwards and the nostril was slit open exposing the lower end of the growth. It was now found that the lower end could be moved slightly. So by gradual movement sideways, I could wrench out the whole thing with great difficulty. There was moderate bleeding and it was arrested. The growth was not connected with any of the bones of the upper jaw.

After-treatment consisted simply in dressing the wound antiseptically and the animal recovered well. It was able to breathe through the left nostril also. The animal was discharged cured on 17-5-36.

Description of the growth :—The whole thing weighed one and half pounds. It was $6\frac{1}{2}$ " long and 9" in circumference at the thickest part i.e. above. The whole growth was submitted to the Principal, Madras Veterinary College, for examination and the following is a copy of the remarks of the Principal :—

"The specimen is heavy and on section presents dense and compact osseous tissue almost ivory-like in consistency. The specimen is an osteoma and is interesting."

RED WATER IN CATTLE AND ITS TREATMENT.

BY

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Subject :—A red bullock, Bastar Hill breed, aged about six years, property of the Jagdalpur Municipal Council was admitted into the dispensary as an out-patient No. 6825 on 4-8-36.

History :—The attendant brought the animal in the morning at about 9 A. M. to the dispensary with the history that it has been passing red coloured urine and off feed for the past two days.

Symptoms :—The animal was dull, depressed, hairs standing out, rumination suspended. Head and neck extended. Temperature $105^{\circ} 6'$ F. It passed about 12 ozs. of coffee coloured urine in my presence. Mucous membrane icteric. Blood smears could not be examined for want of a microscope.

Diagnosis :—From the symptoms it was diagnosed as red water,

Treatment :—It was about 11 A. M., the same day, a sterile solution of Trypaflavin (Bayer's preparation) 15 c. c. of 2 per cent. strength was injected intravenously and triple sulph mixture was administered orally.

Next morning i.e., on 5-8-36, the animal's condition improved considerably. Temperature $101^{\circ} 8'$ F. grazing and ruminating well and the colour of urine completely changed to normal. The following mixture was given.

R

Ammon. Chlor.	...	3	2
Pulv. Rhei.	...	3	2
Quinine Sulph.	...	3	1
Acid Nitro-Hydrochlor Dil.	...	3	$1\frac{1}{2}$
Mag Sulph.	...	3	3

Treacle.	...	Q. S.
Aqua	...	ad. 320
M. Ft. Haust. sig. now.		

On 6-8-36 the animal recovered completely and was discharged cured.

(Ed. *This condition is very commonly met with in S. India.*)

A CASE OF LUMBAR PARALYSIS (PARAPLEGIA).

BY

S. N. SAPRE, B. SC.,

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A Kankrej bullock, large size, aged about eight years, was reported to be unable to get up suddenly one morning and powerless in the hind limbs. The animal belonged to a village, Sanderna, some eight miles away from Karjan.

History and symptoms :—The animal worked during the previous evening as usual and was noticed unable to get up the next morning. The bullock made frequent attempts to get up, but could only move its fore limbs. In the evening when I went to see the case, it was helped to stand by passing ropes from below the belly and chest and was found unable to throw any weight on the hind limbs. The left hind limb seemed more affected than the right one, as a pin prick was felt in the right limb only and not in the left. The tail was limp. The animal was taking food as usual.

It was put down to be a case of spinal paralysis but why one limb only should be affected more than the other was rather perplexing.

Treatment :—A strong purge was administered in the beginning. The loins were cauterised and covered by a blister. (Bin Iodide of Mercury 1 in 4) which was rubbed in. Hand massage to the hind limbs was given daily to facilitate proper circulation of blood. The animal was made to stand by passing ropes from below and was turned from side to side to avoid bed sores. Internally Potash Iodide 4 drams with 1 dram of Pulv. Nux Vomica in feed was given daily.

After about ten days the animal improved in condition and could bear weight on his hind legs, for about five to seven minutes. In about three weeks time the animal could stand of its own accord and could take a few steps forward. The course of Potash Iodide was stopped after eight to ten days and only Pulv. Nux Vomica was given.

The animal was young and costly and now it is completely in a condition fit for work. Hence such cases should not be given up as economically incurable.

A CASE OF RHINORRHAGIA IN A COCKER SPANIEL.

BY

L. K. ACHARYA.

*Veterinary Assistant Surgeon, Veterinary Dispensary, Aurangabad,
Gaya Dt- Bihar.*

One summer day, a Military Officer of the rank of a Captain, passing by the Grand Trunk Road, halted at Aurangabad Inspection Bungalow with a Cocker Spaniel bleeding profusely from both its nostrils. Soon after alighting from the car the Captain enquired if a Veterinary Surgeon could be had. It was afternoon and I was at my Dispensary which is about two minutes walk from the Inspection Bungalow. I saw a man coming towards me who on his arrival narrated the case to me. I at once hurried to the spot and saw the dog still bleeding profusely from both its nostrils. The condition of the dog was very alarming and it seemed that the poor animal would bleed to death in no time. It was almost unconscious.

From the history obtained I provisionally diagnosed that it was a case of Rhinorrhagia. During the journey the dog was exposed to the sun and as such it was unable to stand the heat with the result that there was rupture of the blood vessels.

Treatment :—Since ice was not available, I bathed the head of the dog with cold water obtained fresh from a well and also sprayed Adrenalin Chloride solution (1 in 1000) into the nasal chambers as far up as possible, by means of a rubber tube fixed to a record syringe.

In about an hour the amount of the flow of blood became less and the patient appeared relieved considerably. After some time the dog again began to bleed profusely when I had to resort to plugging the nostrils with cotton wool soaked in Adrenalin Chloride solution (1 in 1000). Internally I gave calcium salt to the patient. At midnight I found that the bleeding had stopped and the patient was lying quietly.

At about 5 A.M., the next morning, i.e., on the second day the patient suddenly began to bleed again and the case appeared to be hopeless. The patient was very much exhausted, the visible mucous membranes were pale, the pulse was feeble and the respiration shallow. It was lying completely exhausted and in a comatose state.

I managed to get an ampoule of Pituitrin and a few ampoules of Colloidal Calcium which I injected simultaneously. The injection was subcutaneous. Now the flow of blood began to lessen and there was total cessation of bleeding after some time. The patient showed signs

of improvement and the condition of the pulse and respiration also improved.

Much care was taken for proper feeding and nursing. On the third day I gave an enema to the dog. On the fourth day I prescribed blood tonics.

The dog was taken down to Calcutta after recovery and I am glad to say that my patient was once again healthy and bright as before. I could not see the dog again but the letter received from its master showed that the dog has completely recovered and there was no further bleeding.

A CASE OF TETANUS IN A PONY

BY

T. S. VENKATESA IYER, G.M.V.C.

*Veterinary Assistant Surgeon, i/c Veterinary Hospital,
Kumbakonam, (Madras).*

Subject ;—On 3-3-36, a country bred pony (O.P. No. 2521). Roan colour, seven years old, was brought to the Hospital with symptoms very characteristic of Tetanus such as protrusion of haw, trismus, stiffness of limbs, salivation and hurried respiration. The temperature was 97°9'F and there were no visible wounds on any part of the body.

Duration of illness was about a week.

Treatment :—3-3-36. The animal was backraked and given warm saline enema. 100 c. c. of 2½ per cent. Carbolic Acid solution was given subcutaneously in five different parts of the body (20 c.c. in each part) without massaging the seat of injection. No other treatment was given and the animal was allowed plenty of green grass and bran.

4-3-36. Temperature 99°8. Enema and injection were repeated. There was slight improvement.

5-3-36. Temperature 100°8. Same treatment was repeated. Improvement still better. No fomentation or liniment applied to the swollen parts.

6-3-36. Temperature 100°8. Enema was stopped but injection repeated. There was marked improvement by stoppage of salivation, lessened protrusion of the haw, greater ease to bend the head and pick up grass from the ground.

7-3-36. No injection was given this day.

R/-

Mag. Sulph.	...	℥ii
Acid. Carbolic.	...	℥i
Treacle	...	Q.S.
M. Ft. electuary. sig. atonce.		

8-3-36. 100 c. c. of 2½ per cent. Carbolic Acid solution was repeated.

9-3-36. No treatment except attention to diet.

10-3-36. "

11-3-36. "

12-3-36. Injection repeated. There was uniform and steady improvement.

13-3-36. Mag. sulph with Acid Carbolic was given as electuary in Treacle as on 7-3-36.

14-3-36. R/-

Soda Bicarb.	...	℥p
Soda Salicylas.	...	℥ii
M. Ft. Pulv. sig in feed twice a day.		

15-3-36. No treatment.

16-3-36. Above powder repeated.

17-3-36. Repeated.

18-3-36. R/-

Mag. Sulph.	...	℥ii
Ammon. Chloride.		
Pot. Nitrates aa	...	℥ii
M. Ft. Pulv. sig in water.		

19-3-36. Above powder repeated.

20-3-36. "

21-3-36. "

22-3-36. "

23-3-36 to 26-3-36. The animal did not attend the Hospital.

27-3-36. No treatment was adopted since the pony was completely cured of the disease.

31-3-36. The owner was permitted to use the animal for work.

This treatment is commended for further trial.

(Ed. It will be interesting to have the experiences of other professional men, on the treatment of the disease with this drug.)

CASTRATION OF PONIES BY THE BURDIZZO'S CASTRATOR.

BY

K. NAGABHUSHANAM NAIDU, G.M.V.C.,

Hyderabad (Deccan).

The purpose of these few lines is to show that the Burdizzo Castrator has given good results in my hands in the castration of the small Deccan Ponies of Mahbubnagar District.

In spite of the pessimistic view prevailing here among some that this method is not a success in horses, I castrated with no bad results about thirty ponies including a Kathiawar stud-bred pony, most of them on tour, by the above method, with the exception of one, whose cord required crushing for a second time.

The position adopted by me while castrating is described below:— After preparing the animal and selecting a suitable ground for its casting, it may be cast by the double rope (Calcutta) method. When the animal is down in the lateral position, both the fore and hind legs of each side should be secured together and should be separate from those of the opposite side so as to facilitate lifting of the hind limb during operation. Thus, when the four legs are well secured the assistant at the quarters should pass another small rope round the shaft very near the bend of the hock or around the thigh at its lower part, whichever is convenient and slightly raise it up just before the operation, and by so doing the hind limbs are kept apart and the hind portion of the animal's body is brought to the position midway between the dorsal and lateral recumbent positions. This is the most convenient position for the operator as he can get at the spermatic cord by raising the testicle well-up and also he can crush it by placing the castrator between his two knees. To be sure of success, the cord should be crushed at two places. When one side is finished, the animal should be turned to the other side slowly and the cord on the side crushed similarly. If the animal is on the lateral recumbent position, he may not get at the cord which is generally very small in ponies and often likely to slip when it is being crushed. On the dorsal position as recommended by Dollar in the open method, it is difficult with a few assistants to control the animal until it is operated upon and is most inconvenient for the operator. The above method of securing the animal in the dorsolateral recumbent position appears to be best suited for the Burdizzo castration.

After-treatment:—Cold water dashing against the scrotum for two or three days and painting Tr. Iodine to abrasions are all that

are necessary. Any wounds of the scrotum, if severe, should be dressed antiseptically.

Sequelae:—Practically nil. In some cases, I found slight swelling persisting for four or five days and subsiding with hot water fomentation.

Conclusion:—I think the failures, if any, in this method are chiefly attributable to one's own carelessness (a) in securing the animal in a position best suited for the purpose and (b) also loosened screws of the machine which has been in use for a long time. Therefore, if the Castrator is an old one, its screws should be well tightened before the operation. This method being quite simple, requiring practically no post-operative treatment and without complications, is to be preferred where one has to do castration on tour. It is my hope that those professional brethren who are already practicing this method, especially on tour, will publish their experiences with this method of castration in the interests of the profession.

ACAPRIN IN PIROPLASMOSIS OF CATTLE.

By

P. A. PARTHASARATHY, G.M.V.C.,
Assistant Lecturer, Madras Veterinary College.

This disease is also known as Redwater, Tick Fever, Texas Fever, etc.

About 15 bovines suffering from the above disease were treated by me in my practice by intramuscular injection of Acaprin.

The symptoms presented by these animals were sudden rise of temperature about 105° to 106°F, well marked dullness, accelerated respiration and heart action, with the characteristic symptom of passing blackish or brownish red coloured urine. Blood smears of all the cases were examined and found to be positive for *Babesia Bigeminum*.

These animals were injected with Acaprin at the rate of 1 c.c. for every 200 lbs, body weight intramuscularly. Electuary containing salines were given in addition as a laxative.

In the majority of cases temperature returned to normal, urine resumed normal colour and showed return of appetite the next day. In a few cases though the temperature was normal, yet the dullness and depression persisted for a few days before they made an uneventful recovery.

The blood smears of cases that underwent treatment regularly for a few days were examined and the result was negative.

There was no need to give a second injection to any of these animals. The use of Acaprin is more advantageous than Trypan Blue owing to smallness of dose, ease of administration.

This drug is supplied in 1 c.c. ampoules by Messrs. Haverro Trading Co., Ltd., Second Line Beach, Madras, to whom application for further enquiries may be made.

This can also be tried in place of Trypan Blue in cases of debility of unknown origin.

[*This drug seems to have no special effect upon Piroplasma Mutans, which is also borne out by experiments by Prof. Walter, Kikuth. Ed.*]

MONSTROSITY IN A CALF.

By

Y. G. SHANTA, G.B.V.C.

AND

CHEAH PHEE PHAY G.M.V.C.

Veterinary Asst. Surgeons, Vety Hosp. Taiping, Perak, F.M.S.

A cow attended the hospital for dystokia on 20th October 1935. By judicious and gentle manipulation a fully grown, male, Bull dog



"Monstrosity in a calf".—A Bull Dog faced male calf.

faced monstrous calf was extracted and it was dead. The cow recovered nicely and was discharged the same day. There was no hair on the body of the calf except on the head and the fore legs.

Hotchpotch for Veterinarians.

Treatment of Selerostomiasis in Horses with Combined Intravenous. Antimony Tratarate and Oral Tetrasol Capsules. (Trans. title) Middeldorf, R. (1934). *Deuts. tierrarzt. Wschr.* 42.43. 689-691.

This author finds that intravenous injection of antimony tartarate combined with oral administration of "Tetrasol" capsules forms a valuable treatment for strongyle infections in horses. The antimony tartarate is given in doses graded according to age as follows:— 0.5 to 0.75 gm. in 100 c.cm. distilled water for animals of six to 18 months, and 0.75 to 1.0 gm. in 100 to 150 c.cm. distilled water for older animals. "Tetrasol", which consists of 50 per cent. carbon tetrachloride together with a thymolterpene compound and concentrated "Therapogen", is given in capsules by means of a pill-gun from a quarter-of-an hour to 24 hours after the injection. The capsules are best given in the morning after twelve hours' complete fasting, and in the following numbers: two to three capsules for animals six months old, three to four for twelve to 18 months, four to five for older horses. The combined treatment can be repeated, with intervals of five or six days, as often as is necessary, three or four treatments usually sufficing. There appears to be no contra-indications. The paper includes six brief case reports illustrating the value of the method. "Tetrasol" is made by Therapogen—A. G., Cologne.

B.G.P.

(Contributed by the Imperial Bureau of Agricultural Parasitology).

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VILLA, P.P. (1935). *Some Observations on Clinical Cases of Canine Rabies.*—*Philipp. J. Anim. Indust.* 2. 161-169.

An interesting account of rabies in dogs in Manila by the city veterinarian, who observed 156 cases between 1930 and 1934, most of them being in impounded stray dogs. Rabies was first officially recognised in the Philippine Islands in 1920, and in 1927 an order for compulsory vaccination of all dogs was passed but was not actually enforced. Impounded dogs are vaccinated before release to their owners and 8,680 dogs have been thus treated in the last seven years.

Villa describes the clinical character of canine rabies and states that the course of illness up to death never exceeds six days in Manila; he is of the opinion that dumb rabies does not exist, *i.e.*,

that every dog, if kept closely under observation, shows at least a short furious stage.

An unusual case of rabies in a six-weeks-old unbitten puppy is recorded.

V.B. No. 3, Vol. 6.

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GOTTARDI, G. (1935). Malattie da carenza nelle bovine de latte (Ematuria cronica) [*Chronic Haematuria in cattle.*] *Profilassi*. 8. 25-26. [7 refs.].

The author discusses the disease, the details being similar to those observed in other countries. A study of several outbreaks has shown that it occurs most frequently in areas deficient in calcium and which have an acid soil lacking in essential minerals. Gottardi suggests that the cumulative effect of these pasture conditions is the cause of the disease. Chemical examinations of the blood of affected animals have shown that there is a diminution in the calcium and phosphorus content of the blood, and the author claims that calcium therapy together with an abundance of good food and water quickly restore an affected animal to its former health.

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THE PREPARATION OF BLOOD SMEARS FOR THE DIAGNOSIS OF PIROPLASMOSIS.

R. PAINE, F.R.C.V.S.

All smears made from suspected cases of piroplasmosis must be made from the first minute drop of blood which appears when the smallest possible incision has been made in the tip of the ear, and that on no account must deep cuts be inflicted which cause large drops to appear or considerable hæmorrhage to occur.

The observation is easily explained when one remembers that infected corpuscles are enlarged by the presence of a parasite, and consequently tend to be hindered in their progress through the smallest capillaries, so that stasis of infected corpuscles takes place in these vessels, whilst they can move freely in the larger vessels.

Similarly, infected red corpuscles like leucocytes are much more frequent towards the end of a smear, having been carried along by the slide in drawing the smear.

R. A. V. C. No. 2 Vol. 7.

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KAKIZAKI, C. (1934) RINDERPEST, ITS CONTROL AND DIFFERENTIAL DIAGNOSIS IN CHOSEN.

Proc. 5th Pacif. Sci. Congr. Can. 1933. pp. 2911-2913. Discussion p. 3091. 1 table.

In Chosen, a rinderpest-immune zone 800 miles long by several miles wide has been created by inoculating cattle with vaccine to protect against the annual invasions of the disease from Manchuria. The vaccine consists of ground spleen, lymph gland, thymus, tonsil and lung of animals killed at the height of the disease, thymus being the most active ingredient. 8 to 10 per cent. of toluol is added and the vaccine is incubated at 37° to 38° for 10 to 14 days. It is said to keep at room temperature for two years and to confer immunity for eight months. 266 cases of rinderpest occurred in the vaccinated area in 1931. For diagnosis of isolated cases of disease a complement-fixation test has given good results in a limited number of experiments; the unheated serum of hyperimmunised cattle provides the antibody, and the boiled extract of the lymph glands, spleen or tonsil of animals suspected to be infected is the antigen.

V. B. No. 2 Vol. 6.

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HALASZ, F. (1934). Szarvasmarhaveszetzseg gyógyult esete (Recovery from Rabies in a dog).—Allatorv. Lapok. 57. 15-16. 1 table. (Abst. from abst. in Rev. gen. Med. vet. 44. 213).

An account of the diagnosis of rabies in a young dog by intramuscular or subdural inoculation of saliva into rabbits which died within 17 to 32 days.

Symptoms in the dog were pronounced for five days and remained stationary during the following three days. By the 18th day all symptoms of paralysis had disappeared and the appetite was regained. Eight days after recovery, the saliva was still infective for the rabbit.

V. B. No. 2, Vol. 6.

There was presented by a member of the Illinois State Health Department, an interesting discussion of some phases of rabies, before the Chicago Veterinary Medical Association monthly meeting, held at the Palmer House, Chicago, the evening of January 14, 1936.

Some notes taken from this discussion follow. In observations in India, where rabies is rampant, it was noted that the number of tooth marks and the depth of bite wounds directly influenced the length of incubation in man. On investigator's determinations further showed that the time factor of rabies incubation in man also varied

with the location of the bite, the distance from the central nervous system. There is given averages as follows:—

Bites on the head—27 days, Bites on the arm—32 days, Bites on the leg—64 days.

Unusually high mortality in human beings has been recorded for rabies ranging up to 35 per cent. of those bitten by rabid animals.

N. A. V. No. 3, Vol. 17.

Notes

Our readers may remember the two valuable communications from the celebrated late Dr. Evans which appeared in this *Journal* in its issue of January 1936, and the blessings he so nobly conveyed to this *Journal* and the All-India Veterinary Association. We have great pleasure now to publish, in this issue, the communication from the University College of North Wales, Bangor, appealing for funds for founding a fitting memorial to the great Veterinary Surgeon and Scientist. We earnestly appeal to the Profession to liberally contribute to the fund.

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Sir Frederick Hobday, C.M.G., F.R.C.V.S., F.R.S.E., Principal and Dean, Royal Veterinary College, has laid down the reins of his great office recently after a period of meritorious service to the profession. His achievements as Principal of the Royal Veterinary College deserve to be written in letters of gold. He is mainly responsible for bringing into existence the new College from the 'ashes' of the old. Indeed, he was a great Principal but a greater surgeon, of whom the profession feels proud even to-day. We cannot do better than publishing elsewhere a reprint from our esteemed contemporary the "Veterinary Record". We wish Sir Frederick every happiness.

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Rai Sahib Gouri Shanker Shrivastava, Officiating Director of Veterinary Services, Central Provinces, has retired after his full service of 33 years. The fact that he rose from the post of a Veterinary Assistant Surgeon to that of the Director of Veterinary Services, earning best laurels from the higher authorities speaks for itself of the ability and qualities of the man. We wish him a long and useful retired life to enjoy his hard earned pension to be of more use to the profession.

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The Madras Serum Institute is now producing on a large scale Anti-Hæmorrhagic-Septicæmia Serum in addition to Anti-Rinderpest serum and virus, Goat-Virus and Vaccine. This is bound to effect considerable savings in the cost of protecting animals against Hæmorrhagic Septicæmia which is widely prevalent in the districts. Having met with such conspicuous success in the economic production of biological products for combating Rinderpest and Hæmorrhagic Septicæmia, it is hoped that the Institute will, at no distant date, take up the production of Anti-Black-Quarter Serum, Vaccine, etc. so that the Institute may be self-contained in meeting the demands of the Presidency in combating the ravages of the most widely prevalent and fatal diseases of cattle at a cheap cost.

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We like to draw the attention of our readers to an article 'Veterinary Education as taught at the Kansas State college' published elsewhere in this issue. It will give good information to many Indian Veterinary students who want to go to foreign countries for higher studies and they will find that it is both cheaper and more profitable to go to America for higher studies than to any other foreign countries. Another interesting article 'Veterinary Education in Japan', has been published elsewhere in this issue for the information of the Veterinarians in India, desirous of going to foreign countries for higher studies.

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We feel glad to inform our readers that Dr. D. S. Laud, G.B.V.C. F.Z.S., who was recently appointed as acting Superintendent of Markets and Slaughter Houses, Bombay, has since been confirmed in his post, vice Capt. C. M. Flanders resigned. We heartily congratulate Dr. Laud on his appointment since he is the first Veterinary Surgeon and the first Indian to be confirmed as the Superintendent of Markets and Slaughter Houses.

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Dr. Laud, in addition to the ordinary routine work of the Markets is to inspect food and food-stuffs and the Slaughter of animals etc., and also is the head of the Weights and Measures Department. He has under him four assistants two of them being B. Scs. and the other two B. Es., to help him in this work. He has also been requested by the Indian Broadcasting Service to give a talk on the Radio on 'Food-stuffs in Bombay' on 19-10-36, on 'Wild Animals in captivity' on 15-11-36 and on 'Victoria Gardens' on 20-11-36. He has also been appointed Lecturer in Food-Stuffs, Markets and Slaughter Houses to the students of Sanitary Surveyors' Classes in Bombay under the auspices of the Royal Sanitary Insti-

tute of England. The profession will be glad to learn that their services are beginning to be recognised by the public.

We congratulate the Bombay Municipal Corporation on its policy of Indianisation of Services and we only hope that other leading Municipalities will try to copy Bombay in their administration.

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The Imperial Council of Agricultural Research in India have secured the services of two British Experts Sir John Russell and Dr. N. C. Wright to take stock of their work for the past seven years and to help them to draw out a suitable programme for the future. It is gratifying to note that Prof. Aggarwala of the Punjab Veterinary College is to be one of the Secretaries of those eminent Research workers. We are happy that the claims of our profession have fallen on such a tried worker as Prof. Aggarwala.

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We are pleased to learn that Mr. Haji G. Osman Khan, G.M.V.C., L.M.S., (Homeo), Unani and Ayurvedic Physician, Veterinary Inspector, Temerloh District, Pahang State, Malaya, is proceeding to Edinburgh for higher studies and intends visiting as many laboratories as possible, to enrich his knowledge. We wish him every success in his enterprise.

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We invite the attention of our readers to the press note appearing elsewhere in this issue, by the Director of Public Information, Simla under the caption "Live-stock Wealth of India". The figures given therein as the estimated annual cash value of India's Animal Products over 2,000 crores of rupees may indeed appear to be incredibly high; so also the figure under the total number of animals as over 300,000,000. But these are facts. In spite of these facts, India which possesses a far larger number of animals than any other country in the world, has to send her sons to the British Islands for Higher Veterinary Education at a cost of nearly 30,000, rupees per individual requiring him to stay there for at least five years! The British Islands much smaller in area and animal population have got many up-to-date Veterinary Institutions within their borders to give the Highest Veterinary Education. It is high time that the Courses in the existing Veterinary Colleges in India are raised to the level of those obtainable in the British Islands and other advanced countries.

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About the middle of last month Mr. Tottenham informed Mr. S. Satyamurthy, M.L.A., on the floor of the Indian Legislative Assembly,



G. S. RATHORE, G.V.Sc., D.V.M.,
who has received the D.V.M., degree from the
Kansas State College, U.S.A.



HAJI G. OSMAN KHAN, G.M.V.C., L.M.S., (Homeo),
Unani and Ayurvedic Physician,
Government Veterinary Inspector,
Tenerloh, Pahang State, Malaya,
who has proceeded to Edinburgh for higher studies.

Simla, that Veterinary education is a provincial transferred subject and therefore the Government of India could not themselves take steps to raise the standard of Veterinary education in this country but they addressed local Governments in the matter. We are sure the local governments in their turn will refer this matter to their respective Veterinary advisers and Directors for opinion. We do not know what advice they will offer to the Provincial Governments. The Honourable Indian Ministers who control the destinies of the Provincial Veterinary Departments including Veterinary Education and the Veterinary Directors or Advisers under these Ministers have a very heavy and sacred duty cast on them regarding this important subject. We are aware that the Royal Commission on Agriculture in India recommended the establishment of one Central Veterinary Institution with a five year course for training up men for higher posts of district charges and to reduce the course of three years in the existing colleges to one of two years to train up men for the subordinate service. We have often pointed out the inadvisability of reducing the course from three to two years to train up and let lose half or under-baked Veterinarian in the country and creating different castes in Veterinary profession in this country. In the presidency of Madras the medical courses even in the medical schools have been extended to five years. The authorities entrusted with the duty of advising the Government may easily learn a useful lesson from the medical profession in this country.

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Each major province and State can easily afford to run an up-to-date Veterinary Institution with a five year course and in fact the Veterinary problems here demand the early establishment of such Institutions. At any rate as a first step the courses in the existing Indian Veterinary Colleges should be extended to five years. The country expects the State Veterinary Advisers to strongly recommend the adoption of this useful measure which is long overdue. The All-India Veterinary Conference and the several Provincial Conferences should again put forth this demand in a united voice since the present is the best opportunity to do so. The last Madras Provincial Conference had an opportunity of giving this lead again but it did not do so on grounds of expediency. We hope the Ninth All-India Veterinary Conference which meets in Bombay in December, in ensuing Christmas Week will again put forth this demand.

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It is welcome news that the Administrator of the Silver Wedding Fund in Cochin has decided to include Veterinary Science as one of

the courses contemplated for the award of scholarships from the Fund. We hope the State will employ such scholarship holders when they return after the completion of their education since there is much scope for their services.

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Mysore continues to lead in providing buildings and opening hospitals through private philanthropy and medical efforts. It is only the other day a leading citizen provided pucca buildings for a Veterinary hospital in Shimoga. It is a great pleasure to note that Madras also has been coming into a line with Mysore in these matters. Some of the District Boards in the south and private philanthropy have of late come forward with schemes to provide Veterinary Aid for the benefit of the suffering animals. Mr. R. Ramjidas Ayyar, Zamin-dar of Kanivadi in Madura District has recently started a Veterinary Dispensary for promoting the welfare of his ryots and has also decided to attach a Kangayam breeding bull to the Dispensary. It is a duty cast upon both the State and private philanthropy to provide Veterinary aid in the interest of the Live-stock of the country. The State in addition to opening the Institutions, should also help, encourage and recognize the private philanthropy in a suitable manner.

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The Tinnevely District Board in Madras recently resolved to open four Rural Veterinary Dispensaries. We are, no doubt in favour of starting such Rural Veterinary Dispensaries in large numbers in each taluk or thahsil. But in our opinion it is too early to attempt to do so. Before the Rural Dispensaries on grant-in-aid basis are started there should be model State Veterinary Institutions in each taluk or thahsil head quarters and other important places. The Civil Medical Department (Madras), in fact, took over many taluk Medical Institutions from the management of local boards and converted them into model Medical Institutions for efficient administration and service. It is only after providing a number of such Medical Institutions, the Civil Medical Department introduced the Rural Medical Dispensary System in important villages but in the matter of Veterinary aid just the reverse seems to take place. We cannot however, afford to neglect the experience of the sister medical department in this respect.

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There is yet another department in the Madras Presidency whose experience should also prove of great use to us. Formerly there were a number of private educational institutions 'both for girls and boys' there. The Educational Department took over the management of several institutions and started their own Institutions which

have been serving now as model Colleges, High Schools, Training and other Schools. We therefore urge that there should be similarly many model Veterinary State Institutions providing efficient Veterinary aid before the Scheme of Rural Veterinary Dispensaries is introduced.

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The report on the Milk Scheme of the Simla Municipality for the under-nurished school children of indigent parents, published recently has not only proved the value of milk as the valuable addition to the dietary of the growing child in India but has also shown that the expectations have been more satisfactory than in similar experiments in England and Scotland, that it would seem that milk is specially indicated for conditions obtaining in this country. Another significant fact is that the children have escaped from the minor ailments which normally bring them to the school dispensary. But poor India in spite of her having the largest number of cattle population cannot supply milk in sufficient quantities even to the crying babies and patients. How can we expect under the circumstances that all school going children to get milk ! The Viceroy has rightly understood the situation and he is therefore very keen in improving the milk yielding capacity of the Indian cows.

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The local Veterinary Officers who have been touring in the interior of the country can only castrate a large number of animals and they have been doing this as successfully as possible under the existing circumstances in the country. But they have no powers to supply the stud bulls even to such villages which have got all their male stock castrated. So far they have not succeeded in their attempts to induce the Zamindars, wealthy land lords, co-operative societies and the local boards to purchase and maintain stud-bulls even in important places. We are glad now to note that following this splendid example and the exhortation of the Viceroy, the heads of several Provinces and the Honourable Ministers have been now taking steps to induce the above class of people and the organisations in different districts to purchase and maintain stud bulls or present them to other agencies or institutions offering to maintain them.

* * *

Coimbatore district in southern India has always been famous for a good breed of cattle which has been in great demand in the south. The district board of Coimbatore has been evincing a keen interest in encouraging the development of this lucrative occupation of its farmers by a liberal scheme of supplying stud bulls for the benefit of the district. We wish all the other boards in the country follow this example.

* * *

The cow and the bull are the two sacred animals maintained from time immemorial in the Hindu Religious Institutions. Offering of "Gograsam", or the daily feeding of cattle with rich feed before offering food to men is also one of the sacred religious customs in many of the Hindu Temples, Mutts and orthodox families. Even now many animals can be seen thus attached to these institutions but most of them are of indifferent variety, generally contributing more towards the wastage of valuable cattle feed and towards the deterioration of the breeds. The Hindu Religious Endowment Board or similar organisations which have control over the Temples and Mutts in the country can effectively induce the rich Institutions to maintain really good milch cattle and stud bulls in the place of the indifferent ones, for the benefit of the Institutions themselves and the community at large.

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Among the various schemes for the Rural Development which were placed before the Financial Committee in Madras for its acceptance and which will be given effect to shortly are mentioned the following, of great interest to the Veterinary profession:—1. Additional Touring Veterinary Assistant Surgeons for the control of contagious diseases ; 2. Equipment of a second exhibition Motor Van for Veterinary Propaganda work ; and 3. Investigation of conditions of cattle Pentas in the Nullamalais of Kurnool and Cuddapah districts. As a result of this we already see that the Public Services Commission has advertised calling for applications for filling up 32 posts of Veterinary Assistant Surgeons in the Madras C. V. D. This is quite good but we only hope that these schemes will soon be given effect to and all the selected candidates will also soon be employed without placing them in the waiting list for an unduly long or indefinite period.

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Besides the above schemes, the Madras Government have under examination several other proposals of which the following are again of great Veterinary importance:—1. Establishment of a new Live-stock research Station, increase of cattle in other Research stations and improvement of cattle by distribution of stud bulls, etc., ; 2. Establishment of model Dairy ; 3. Establishment of Model Poultry breeding stations ; and 4. Investigation of poultry diseases.

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We invite the attention of our readers to the various extracts from the daily press published elsewhere in this issue, on various subjects such as Animal Husbandry, Travancore Scheme for the Improvement of Cattle, Saving of dairy cattle from slaughter, the Government of India Scheme for the Central poultry Institute at

Izatnagar and Cattle breeding in Orissa, etc. All these are the direct outcome of the keen interest of H. E. the Viceroy in improving the lot of the Indian Farmer.

* * *

We feel glad to learn that Dr. G. W. Browning, Mobile, Alabama, U.S.A., who has been a subscriber to our *journal* from the very beginning, has passed his eightieth year, but he is still interested in Veterinary matters even though he retired from practice three years ago. We only wish, the same can be said of many Indian Veterinarians who have to retire at their fifty-fifth year. We wish Dr. Browning all happiness in his retirement.

* * *

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Association News.

THE INDIAN VETERINARY JOURNAL.

Statement of Receipts and Disbursements for the year
1935—1936 ending 30th June 1936.

1-7-35	To Balance. 933 13 9	30-6-36	By Journal Prin-
	„ Subscrip-		ting. 1115 11 7
	tions. 4199 10 8		„ Cost of
	„ Donation. 5 0 0		Blocks. 144 10 0
	„ Advertise-		„ Postages. 882 1 6
	ment. 604 3 0		„ Printing
	„ Sale of		& Statio-
	Blocks. 6 0 0		nery. 37 4 9
	„ Interest. 31 6 9		„ Rent. 480 0 0
	„ V. P. P.		„ Salaries. 480 0 0
	recovered. 63 2 0		„ Honora-
			rium. 1000 0 0
			„ Dona-
			tion. 14 7 0
			„ Books. 4 10 0
			„ Cost of
			Type-
			writer. 150 0 0
			„ Binding. 28 8 0
			„ Repairs. 1 8 0
			„ Bank
			charges. 2 14 0
			„ Audit fee. 25 0 0
			„ Ry. Frei-
			ght. 8 10 0
			„ Sundries. 2 9 0
			„ Balance.
			1465 6 4
	<u>Rs. 5843 4 2</u>		<u>Rs. 5843 4 2</u>

P. SRINIVASA RAO,
Editor.

5, Errabalu Chetty St.,
Madras, 12th Sept. 1936.

Examined and Found Correct,
K. GOPALKRISHNA RAO,
Registered Accountant & Auditor

College News.

BOMBAY VETERINARY COLLEGE GOLDEN JUBILEE CELEBRATION FUND.

Date.	R. No.	Name.	Address.	Donation Rs. A. P.
<i>Amount already acknowledged in the July issue of the Indian Veterinary Journal.</i>				1,150 3 0
July, 3	117	Mr. R. N. Naik	B. V. College, Bombay	35 0 0
	118	Khan Bahadur N. K. Kalianivala	Rajkot	11 0 0
	119	Mr. G. K. Urs	London	15 0 0
	120	„ D. S. Khole	B. V. College, Bombay	13 0 0
„ 8	121	„ J. P. Pereira	Bombay Municipality	20 0 0
	122	„ K. T. Frank	do	10 0 0
	123	„ Y. S. Wakankar	do	7 0 0
	124	The Secretary, Bombay Pinjrapole	Bombay	50 0 0
„ 9	125	Mr. H. C. Nathani	Bombay Municipality	3 0 0
„ 16	126	„ N. K. Kulkarni	Sangli	5 0 0
	127	„ R. B. Phadnis	Chiplun	5 0 0
	128	„ R. P. Vedak	Bombay Municipality	12 8 0
	129	„ A. G. Khair	do	10 0 0
	130	„ N. B. Gupte	do	10 0 0
	131	„ N. V. Nabar	do	6 8 0
	132	„ B. M. Phatarphod	do	5 0 0
	133	„ N. T. Mehta	do	7 0 0
	134	„ B. A. Malandkar	do	5 0 0
„ 17	135	„ V. B. Kanitkar	Bhusawal	4 0 0
„ 25	136	„ N. S. Pathak	Nagpur	11 4 0
	137	„ S. K. Dighe	Piparia	6 4 0
	138	„ R. P. Dubey	Dindori	2 0 0
	139	Rao Saheb Gouri Shankar	Nagpur	5 0 0
	140	Rao Saheb G. D. Khandkar	Nasik City	5 0 0
	141	Mr. N. V. Patankar	Bametara (Drug)	5 0 0
	142	„ V. V. Apalacharya	Khairgarh State	3 0 0
	143	„ R. R. Agarwal	Drug	3 0 0
	144	„ D. S. Tamboli	Buldana	5 0 0
	145	„ P. R. Wallabhadas	Gandai	5 0 0
	146	Mr. B. Narayanaswami	Saugor	10 0 0
	147	„ G. Kurian	do	1 0 0
	148	„ G. D. Pan	do	1 0 0
	149	„ R. D. Prasad	do	1 0 0
	150	„ S. V. Balkrishna	do	1 0 0
	151	„ M. K. Swami	do	1 0 0
	152	„ R. K. Patankar	Ahiri (Chanda)	5 0 0
	153	„ G. S. Burgah	Lakhanadon (Chindwara)	3 4 0
	154	„ Ali Jafer	Jubbulpore	2 0 0
	155	„ S. L. Chobey	Baloddbazar (Raipur)	3 0 0

Carried forward 1,462 15 0

Date.	R. No.	Name.	Address.	Donation Rs. A. P.
			Brought over	1,462 15 0
	156	„ R. K. Ghosh	Umerkhed	5 0 0
	157	„ Sharadaprasad	Harda	5 0 0
	158	„ Mahomed Razanullah	Bhandara	5 0 0
	159	„ Ram Mohanrao	do	1 0 0
	160	„ N. C. N. Roy	Akola	2 0 0
	161	„ C. B. Nag	Rehte	3 0 0
	162	„ S. W. H. Rizwi	Nagpur	5 0 0
	163	„ S. C. Roy	Seoni	3 0 0
	164	„ D. V. Damle	Chiklada	4 0 0
July 30	165	„ P. G. Date	Bombay	15 0 0
„ 31	166	„ Major L. M. Thosar	Gwalior	25 0 0
Aug. 2	167	„ Mr. S. V. Sakdeo	Bombay	5 0 0
	168	„ C. W. Fernandez	do	5 0 0
	169	„ M. K. Gurudacharya	do	25 0 0
Aug. 4	175	„ J. J. Vyas	Balsar	5 0 0
	176	„ V. N. Sohoni	Mahabaleshwar	10 0 0
	177	„ G. C. Kale	Savda	5 0 0
	178	„ K. B. Trivedi	Dholka	6 0 0
	179	„ S. S. Patki	Satana, Nasik Dist.	6 0 0
	180	„ D. E. Marathe	Mahad	5 0 0
	181	„ N. R. Desai	Viramgam	6 0 0
	182	„ L. N. Ghatpande	Nandurbar	5 0 0
	183	„ P. A. Mulay	Vani, Nasik Dist.	3 0 0
	184	„ D. B. Sapre	Wai	6 0 0
Aug. 4	185	Mr. M. P. Gandhi	Nadiad	5 0 0
	186	„ N. G. Bhide	Mhaswad, Satara Dist.	5 0 0
	187	„ G. G. Chebbi	Bijapur	5 0 0
	188	„ K. R. Alur	Dhulia	5 0 0
	189	„ K. V. Barde	Savda, E. K.	6 0 0
	190	„ M. C. Patted	Dharwar	6 14 0
	191	„ C. R. Narayanrao	Bhimtal, U. P.	3 0 0
	194	„ B. B. Kharate	Burwah Dist. Indore	2 8 0
„ 12	196	„ H. C. Nathani	Bombay Municipality	3 0 0
	197	„ R. L. Jagavkar	do	10 0 0
„ 14	198	Prof. Mohey Deen	Bom. Vety. College	25 0 0
	199	Mr. J. H. Unerkar	Bombay	7 8 0
	200	„ G. T. Shah	do	7 8 0
	301	„ D. H. Velankar	do	5 0 0
	302	„ S. S. Bhonsale	Dewas (Senior)	5 0 0
	303	„ R. Subramania Iyer	Sholapur	4 0 0
	304	„ A. S. Khan	Bedar, Nizam's Dom.	6 0 0
„ 18	305	„ B. A. Contractor	Bombay Municipality	10 0 0
„ 25	306	„ A. A. Dave	Balsar	5 0 0
	307	„ M. M. Murgod	Gokak	6 0 0
	308	„ A. C. Patel	Amalner	5 0 0
	309	„ S. I. Vyas	Anand	5 0 0
	310	„ V. B. Desai	Ratnagiri	5 0 0
	311	„ V. B. Dinkar	Sindkheda	7 0 0

Carried forward 1,782 5 0

The Bombay Veterinary College Golden Jubilee Fund

173

Date.	R. No.	Name.	Address.	Donation Rs. A. P.
			Brought Over	1,782 5 0
	312	Mr. N. B. Kotbaje	Junner	6 0 0
	313	" H. G. Murnal	Bagewadi	6 0 0
	314	" V. V. Tardalkar	Shirpur	5 0 0
	315	" A. A. Chate	Karmala	5 0 0
	316	" M. R. Tagare	Kopargaon	7 0 0
	317	" H. R. Kulkerni	Nargund	5 0 0
	318	" G. V. Dadhe	Poona	7 0 0
	319	Col. A. G. Sadekar Powar	Baroda	30 0 0
	320	Mr. W. V. Soman	do	12 0 0
Aug. 28	321	Mr. S. M. Vasawada	Baroda State	5 0 0
	322	" R. V. Date	do	5 0 0
	323	" A. M. Mehta	do	5 0 0
	324	" L. V. Rishi	do	5 0 0
	325	" R. K. Abhyankar	do	5 0 0
	326	" A. F. Bhumgara	do	5 0 0
	327	" S. H. Bapat	do	5 0 0
	328	" K. R. Patil	do	5 0 0
	329	" D. B. Pandya	do	5 0 0
	330	" R. K. More	do	5 0 0
	331	" S. B. Pandya	do	5 0 0
	332	" M. G. Bhonsale	do	5 0 0
	333	" D. M. Chawan	do	5 0 0
	334	" M. P. Parmar	do	5 0 0
	335	" R. G. Deshpande	do	5 0 0
	336	" S. G. Desai	do	5 0 0
	337	" H. V. Save	do	5 0 0
	338	" H. V. Kulkerni	do	3 0 0
Sep. 4	339	" M. Ramakrishna Pillai Jt. Hon. Secretary All India Veterinary Association. Madras Branch	Madras	50 0 0
	8 340	Dr. M. S. Batliwala	Bombay	10 0 0
	341	Mr. R. M. Kalapeshi	do	5 0 0
	342	" S. P. Deshpande	do	6 0 0
	343	" M. B. Patel	Viramgaon	5 0 0
	344	Khan saheb N. K. Vaccha	Quetta	25 0 0
" 12	345	Mr. V. N. Kulkerni	Dharwar	7 0 0
	346	" S. G. Gokhale	Ichalkaranji	5 0 0
	347	" S. N. V. Iyengar	Sanand, Ahmednagar Dist.	5 0 0
" 16	348	" P. A. Shukla	Nagpur	5 0 0
	349	" S. M. Ghazi,	Patancharu, Nizam's Dominions	4 0 0
	350	" D. Shivaramkrishna,	Aurangabad.	2 0 0
		" K. Krishna Iyengar, Superint- endent, C. V. D., Mysore. (First instalment from the Graduates in Mysore C.V.D.)		100 0 0
		Carried forward	...	2182 5 0

Date.	R. No.	Name.	Address.	Donation Rs. A. P.
			Brought Over	2,182 5 0
Sept. 25.	351	Mr. T. S. Aiyaswamy	Manthany	3 0 0
	352	„ K. S. Shetty	Narayanguda	2 0 0
28	353	Rao Saheb P. D. Maniar	Jammagar	7 0 0
	354	Mr. C. N. Desai	Ahmedabad	7 12 0
	355	„ V. R. Dhuru	Kalyan, Surat Dist.	7 0 0
	356	„ M. K. Jhavery	Godhra	7 0 0
	357	„ M. C. Parikh	Olpad	6 0 0
	358	„ H. B. Shirsathe	Surat	11 4 0
	359	„ A. R. Kuppaswami	Penang	10 0 0
Total.				2,243 5 0

Three receipts Nos. 192, 193 and
195 have been cancelled due to
clerical error.

D. S. LAUD,
Hon. Treasurer,
2-10-1936.

Mr. U. D. Raghunatha Rao
(Through Dr. M. S. Sastry).

Magadi, Mysore,
2 0 0

Total 2,245 5 0

Communications

To

THE EDITOR,

The Indian Veterinary Journal.

Sir,

Please publish the following in the next issue of the journal for the information of our professional brothers attending the Bombay Veterinary College Golden Jubilee Celebration and the 9th All-India Veterinary Conference:—"Boarding and lodging arrangements will be made by the Reception Committee, provided previous intimation is received on or before 1st day of December 1936 from the Veterinary Surgeons attending the Bombay Veterinary College Golden Jubilee Celebration and the 9th All-India Veterinary Conference to be held in Bombay during the next christmas."

Yours Sincerely,

P. G. DATE,

Joint Hon. Secretary,

Bombay Veterinary Medical

Association, Bombay.

**THE GOLDEN JUBILEE CELEBRATION OF THE
BOMBAY VETERINARY COLLEGE,
AND
THE NINTH ALL-INDIA VETERINARY CONFERENCE,
1936.**

NOTICE.

In pursuance of the resolution No. 3, passed in the Eighth All-India Veterinary Conference, the Committee appointed to arrange for the celebration of the Golden Jubilee of the Bombay Veterinary College, has fixed up 27th December 1936, for the celebration of the Jubilee and 28th and 29th December 1936, for the holding of the Ninth Session of the All-India Veterinary Conference in the Bombay Veterinary College, Parel, Bombay.

Mr. F. Ware, F.R.C.V.S., Director of the Imperial Institute of Veterinary Research, Muktesar, has kindly accepted the invitation to preside over the Conference.

In accordance with the resolution No. 2 of the last Conference, Dr. Chaudhuri Mushtaq Ahmed Saheb Bahadur, G.P.V.C., of the Punjab Veterinary College, will be presented on the occasion, with a Gold Medal in appreciation of his valuable and useful invention of Veterinary Instruments and appliances. As already announced in *the Indian Veterinary Journal*, it is also proposed, according to the general desire of the Central Committee to present Medals to the Indian Veterinary graduates who have solidly contributed to the progress of Science by way of Research, Invention, Treatment and otherwise with a view to encourage further work in these directions. In response to the announcement made on this behalf in *the Indian Veterinary Journal*, so far, only the Madras Provincial Branch of the All-India Veterinary Association has recommended some names for such award and the other Provincial Branches have not yet done so. It is therefore requested that the other Provincial Branches of the All-India Veterinary Association will kindly recommend the names of such Indian Veterinary Graduates who in their opinion have rendered such service so that the Central Committee may soon make a final decision and announce it sufficiently early. This information with details of the important work done by the individuals may kindly be furnished to me *before the 31st October 1936*. Contributions towards the expenses of this scheme are also requested from the members of the profession and the Provincial Associations.

This year's Conference will come off at a most opportune time. H. E. The Viceroy, Lord Linlithgow has been very keen in improv-

ing the Live-stock and the Agriculture in this country. He is not satisfied with mere talking about these things but he has been actually doing the work in this direction. The Indian Veterinary Profession should seize this opportunity, meet in large numbers in the ensuing Conference at Bombay and put forth in one united voice the several Veterinary needs of the country so that the Indian Veterinary Profession may soon become a highly competent body to cope with the ever growing Veterinary problems in the country. If we let go this opportunity, the posterity will have every reason to blame us for our negligence. The profession will lose the precious opportunities of serving the country in a very useful manner at a time of her great need. It is therefore the earnest desire of the Reception Committee that each Province should send a large number of delegates to the Conference at Bombay this year, with well informed proposals on various subjects of Veterinary importance to the country. Every profession and science in the country has been putting forth a five or ten year plan from its point of view for the economic uplift of the country and the Veterinary profession has also got a very important part to play towards this economic uplift of both the rural and urban parts. It is therefore our sacred duty to muster in large numbers and discuss the several problems and present an united voice at the Conference in Bombay. Our friends in Bombay have been making every possible arrangement for the comfortable and free boarding and lodging of the delegates during their stay in Bombay for the Conference. It may not be possible for the Reception Committee to issue invitations individually but the Committee will feel very glad to receive as many members of the profession from all parts of the country as can conveniently gather in Bombay on this happy occasion and to make their stay quite comfortable, happy and useful. Therefore the individuals who desire to attend the functions may write to the *Joint Secretaries of the Bombay Veterinary College Golden Jubilee Celebration Committee, Bombay Veterinary College, Parel, Bombay*, intimating on or before the 1st of December, the date and the time of their arrival to enable the Committee to make the necessary arrangements to meet them. The Provincial Associations will also please intimate similarly about the delegates from their Branches. No fee will be collected from delegates and members. Contribution of funds either small or large will however, be most thankfully accepted as the total expenses will run up very high for the successful celebration of these functions, in a fitting manner. There has been already some good response in this direction from Madras and Mysore Associations and also from some individual members even from outside the Bombay Presidency.

I may once again request the individuals and the Associations to kindly send the papers to be read at the Conference to reach me on or before the 10th November 1936.

ANANTAPUR P.O.,
(Madras Presidency),
30th September 1936.

M. S. SASTRY, G.B.V.C.,
General Secretary,
The All-India Veterinary Association.

To

THE EDITOR,
The Indian Veterinary Journal.

SIR,

Please publish the following in the next issue of the journal.

**THE BOMBAY VETERINARY COLLEGE GOLDEN
JUBILEE.**

AN APPEAL.

It is decided to celebrate the Golden Jubilee of the Bombay Veterinary College on 27th December 1936. All those connected with the Institution, either as "old boys" or otherwise, are very cordially invited to extend their hearty co-operation and generous help by donations. We are doing our best to send out personal invitations but oversights are possible. So, it is requested this may be treated as a personal invitation.

N. D. DHAKMARVALA,
Chairman,
The Jubilee Celebrations Committee,
Bombay Veterinary College, Parel.

To

P. SRINIVASA RAO, ESQ., G.M.V.C.,
Indian Veterinary Journal, Madras, India.

DEAR SIR,

I am sure it will be of interest to you to know that a memorial to the late Dr. Griffith Evans is to be put up by this College, where he was for twenty years a Lecturer on Veterinary Hygiene. The Memorial will take the form of a new Veterinary Wing, which will be named after this distinguished member of the Veterinary profession.

Shortly before his death Dr. Evans wrote a fairly lengthy contribution to *your journal*, and received from you a reply which gave him very great pleasure.

Yours faithfully,

20-4-1936.

E. H. JONES,

*Secretary and Registrar,
University College of North Wales, Bangor.*

UNIVERSITY COLLEGE OF NORTH WALES.

School of Agriculture—New Memorial Wing

It was a bold, if inevitable, venture on the part of the University College of North Wales, itself then only five years old, to seek to meet the extensive agricultural needs of the area by establishing the first Department of its kind in the United Kingdom. The results have more than justified the courageous optimism of its founders. The modest Department of fifty years ago has not only grown into a School of Agriculture whose activities extend far beyond the class room, but has also given birth to the schemes of Agricultural education maintained by the counties.

ADVISORY SCHEME:--The establishment of advisory sections and consequent development on the research side of the School have made it an institution of the greatest importance and benefit to landowners, farmers, stock-breeders and horticulturists. The advisory services of the staff are available to agriculturists of all classes, free of charge; thus those who are confronted with problems lying outside their experience can readily secure the services of specialists dealing with a wide range of subjects—the management of live-stock and crops, animal diseases, plant diseases, insect pests of crops and stock, the formation and improvement of grassland, the manuring and improvement of soils, the improvement of the milk supply, are all subjects specially provided for.

As their experience of the work of the various departments grows, the farmers, land owners and other agriculturists of North

Wales are yearly making increasing demands for service and are looking to the College more and more for advice and guidance.

A SESSION'S WORK :—Last season over a thousand agriculturists visited the College Farm. The Veterinary Department received 21,000 specimens for examination and report, including over 200 carcasses of sheep and lambs for post mortem investigation and 700 milk samples for the biological test for tubercrulosis. In addition, over 2,000 samples of milk were received for bacteriological and chemical analysis; 250 samples of soil were analysed in order to secure information on which advice regarding improvement could be given. Advice was given, either personally or by letter, in more than 600 cases where trouble with insect pests or plant diseases was being experienced.

This very extensive co-operation between the College and the practical farmers of the countryside has proved of inestimable mutual benefit. By granting ample field facilities for the collection of data and material for investigation in the laboratories, the farmers and land owners of North Wales have greatly assisted the research branches.

DISCOVERIES AND INVESTIGATIONS :—The growing co-operation, whilst it has added substantially to the work of the School, has resulted in valuable research discoveries. The most striking example, perhaps, was the discovery of the method of treatment of liver fluke in sheep. The treatment is now in use in all the pastoral countries of the world. The Ministry of Agriculture estimated that in 1920—21, before this discovery, more than 60,000 sheep were lost in North Wales alone. Such losses no longer occur.

The survey of the incidence of tuberculosis in cattle-rearing district of North Wales is leading to the elimination of the disease from various districts.

Other animal diseases such as lamb dysentery, contagious abortion in cattle, bacillary white diarrhoea in poultry, infectious pneumonia in sheep, pulpy kidney diseases of lambs, stomach worm infestations, are being constantly investigated with substantial benefit to our stock owners.

The Agircultural Research Council have selected Bangor as the centre for important investigations into the Sheep Maggot Fly, a scourge of the flocks. In fact the value of the investigations which are proceeding year in year out in the research laboratories is being increasingly recognised both by the State and by the Local Authorities.

The investigation of virus diseases of potatoes has been proceeding for some years, and one result has been the discovery of

certain areas in North Wales where conditions are exceptionally favourable to the development of a seed potato industry. This new industry may well become an important branch of arable farming in North Wales.

DR. GRIFFITH EVANS MEMORIAL WING.

For the further growth of these activities arising from the zeal of the research worker and the demands of the farmer, the existing buildings, already inadequate, make no provision whatever. The College has therefore decided to erect an extension which will be known as the "Dr. Griffith Evans Memorial Wing." Dr. Griffith Evans, whose reputation in Veterinary Science was world wide, was the first lecturer in Veterinary Hygiene at the College. To commemorate the pioneer contributions which this distinguished Welshman made to the advancement of Veterinary and Medical Science, and his connexion with the Department, extending over twenty years, the College believe that the association of his name with the new veterinary wing will be universally welcomed.

If funds permit, it is proposed to institute various other improvements and developments which will further enhance the value of the services which the School of Agriculture is rendering to the industry in general and to the North Wales farmer in particular.

It is estimated that to fulfil the needs set forth in the attached memorandum a sum of not less than £ 4,000 will be required. Towards this the Ministry of Agriculture, recognizing the urgent necessity for the extensions, has promised a grant up to £2,000 on a £ for £ basis.

In view of this generous inducement to public support held out by the Ministry, the College confidently appeals for subscriptions from its friends, and especially from all those who realise the national importance of agricultural progress and prosperity.

UNIVERSITY COLLEGE OF NORTH WALES
MARCH 1936.

Dear Sir,

DR. GRIFFITH EVANS MEMORIAL WING.

May we draw your attention to the enclosed appeal, and ask you to give it your sympathetic consideration and support? You will observe that through the offer of the Ministry of Agriculture any donation received from you will be doubled by the Government. All subscriptions will be gratefully acknowledged.

Yours faithfully,

HOWARD DE WALDEN	<i>President.</i>
H. R. DAVIES	<i>Chairman of Council.</i>
G. A. HUMPHREYS	<i>Chairman of Agricultural Committee.</i>
D. EMRYS EVANS	<i>Principal.</i>
R. G. WHITE	<i>Professor of Agriculture.</i>

To The Registrar, University College of North Wales, Bangor.

* I enclose _____ the amount of £ s. d.,

* I shall be glad to subscribe _____
being my donation to the Dr. Griffith Evans Memorial Fund.

Name

Address.....

.....
.....

* Please strike out what is not applicable.

Cheques should be made out to "The Griffith Evans Memorial Fund".

ROYAL COLLEGE OF VETERINARY SURGEONS
LONDON, MARCH 1936.

To

E. H. JONES, ESQ. M.A.,
Registrar, University College of North Wales, Bangor.

DEAR MR. JONES,

It is with the greatest pleasure and enthusiasm that I support the appeal of the University College of North Wales in its desire to add a new wing to the Veterinary Department of the School of Agriculture.

ture, and to name it after our late distinguished Centenarian Colleague Dr. Griffith Evans, whose name our profession is so proud of as the pioneer of the treatment of malaria and other tropical diseases which his discovery of the presence of parasites in the blood stream made possible in human, as well as Veterinary medicine.

The sum asked for is not large and I hope that every member of the Veterinary profession will respond to your appeal—Even if it is only to the tune of a modest half crown.

I have much pleasure in enclosing my own small mite in this envelope.

Yours sincerely,
FREDERICK HOBDAV.

Extracts

CENTRAL BREEDING FARMS AND VILLAGE CATTLE IMPROVEMENT.*

BY

BURCH H. SCHNEIDER, PH. D.,
*Professor of Animal Husbandry and Dairying,
Allahabad Agricultural Institute.*

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Each year large numbers of visitors, who represent every class of people in India, display interest in the cattle at the Allahabad Agricultural Institute. A few ask, "Where can we buy cows like these?" Others only sigh and think that improved (and hence expensive) cattle are entirely out of their reach. Many inquiries are received from persons wanting to buy cows, who say that they are willing to pay a better price for a better animal, but who act as if they were being robbed when the value of a cow is stated. We advise, "Buy bulls, not cows". If cow-owners, who desire improved stock, would pay attention to the bulls which sire their future herd, instead of trying to buy a few good cows from time to time, they would have their own good herd.

Ocassionally, when someone seems to be enough interested to take time and effort to understand, we try to explain how valuable cattle may be acquired without great expense, that good herds must be bred not bought, and that buying the right kind of a bull, even though the price may seem high, is actually a real investment. As fewer bulls are needed than cows, a wider opportunity for choice is possible, and if the price of a bull is divided between his many improved offspring, it will be seen that a valuable sire is good economy. Many object that it will take a long time, and nothing is done about it. Yet to a few villages near Allahabrd, to which formerly good cattle were as accessible as the Imperial Air Mail which flies over them, more valuable livestock is a reality which they definitely expect to achieve.

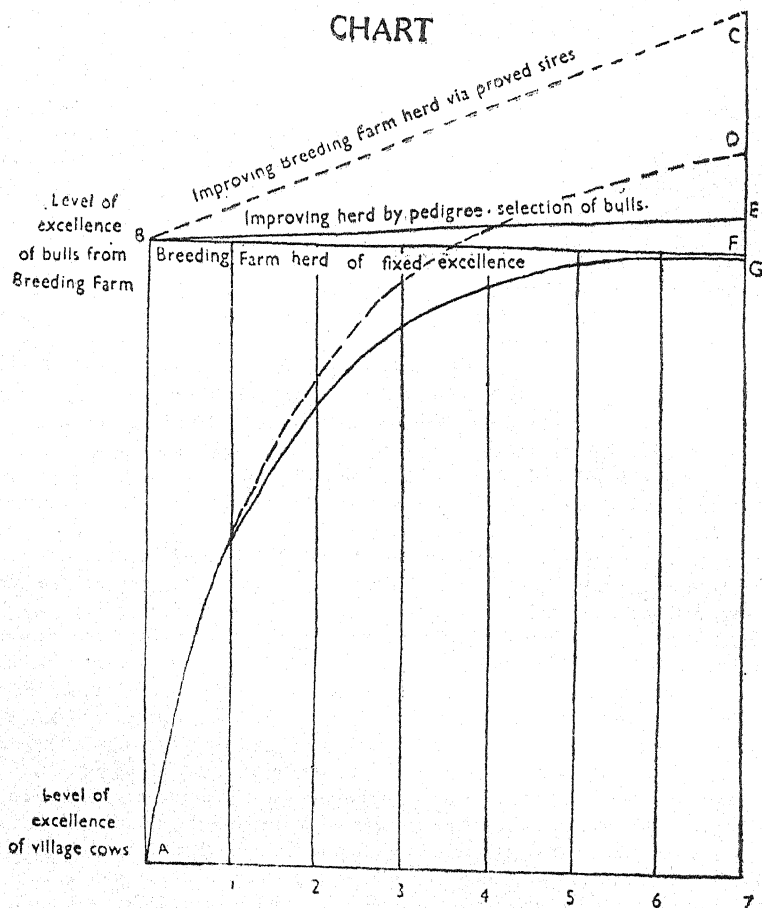
* Reprinted from the Allahabad Farmer, Vol. X, No. 5.

The continued use of approved bulls of the same breed in successive generations, following the breeding process known to animal husbandmen as "grading", is an economical and scientifically sound method of improving village cattle. The original native cows are well adapted to living under the local conditions, and such changes from the indigenous type as occur from generation to generation take place very gradually. The problem of adapting many purchased animals to a new environment does not occur. The investment is relatively small, yet if the bulls are carefully selected, the desired type is progressively approached. Breeders have a period of years in which to learn to take better care of better cattle. As their cattle improve year by year, they gradually become more skillful in giving the kind of care that more specialised animals need. Disappointments, such as may occur after heavy investments in herds of pedigreed cows, do not happen when this method of cattle improvement is used.

It is important that a careful selection of the breed be made in the beginning, and that thereafter no change be made. In selecting a breed, it must be borne in mind that cattle breeding is a co-operative enterprise. There is little chance of success, for a man working alone. It is important to select the breed of cattle which the majority of the good breeders of the district have chosen, if such a choice has been made. The breed of bulls for village cattle improvement should be one suited to the environment, and similar to, but distinctly better than, the common cattle. An area which always has had small cattle may not be able to support a very large breed. Extremely large bulls may not be able to serve the smallest type of village cows, in which case the cattle-owners shall maintain scrub village bulls also. It may not be desirable for village farmers having very small holdings to try to keep large cattle. Some of the breeds of Indian cattle which are especially suited for pulling carts long distances on the road are very tall and shallow-bodied. They are "hard-keepers", that is, they are expensive to feed. If draught cattle for road work are wanted, these may be best, but if bullocks for ploughing only are desired, deep-bodied, thick-set animals which are "easy keepers", may be chosen. Colour is of importance to breeders of pedigreed cattle only as a trade-mark. It need not enter into the choice particularly unless the people of the district have prejudices against certain colours. If the district is far from urban centres, a dairy breed may not be as satisfactory as one bred more for its draught qualities. Wherever there is a good market for milk, this fact should be considered in making the choice. However, all of these points must be tempered in view of the type of cattle already present in the locality. Once the choice is made on the basis of these points, and a breeding programme started, *there must be very good reasons indeed for making any change in the breed used for grading village cattle.*

If this grading process is continued over a period of years, cattle improvement may be expected to take place as shown by the solid curve AG in the chart on page 184, if the stud bulls are obtained from sources which furnish bulls of uniformly good quality. In practice, bulls are not uniform and the results vary from generation to generation according to the quality of the sires used. In some cases, much greater improvement in ruggedness and strength is noticed in the first generation than is shown in the chart. This is due to what is known as "hybrid vigour", that is, a tendency for a hybrid to display the best qualities of both parents. The more nearly the bulls approach the cows in type, the less hybrid vigour is likely to be displayed, but the advantage of being able to start with improved bulls of a similar type more than offsets the temporary benefits of hybrid vigour.

It is evident from the chart that over a period of years village cattle may be improved until for all practical purposes they are as good as the central breeding farm herd from which the bulls come. In each succeeding generation the difference between the village cattle and the cattle of the breeding farm is cut in half.



Curve A. G.—Grading village cows by bulls from Breeding Farm Herds of fixed excellence.

Curve A. D.—Grading village cows by bulls from Breeding Farm Herds which are being improved by means of proved sires.

There is some evidence to show that there is a tendency for animals having low milk production to be lifted seven-tenths of the way toward the higher level of milk production in the next generation after using a bull of good dairy qualities, but for practical purposes it is usually considered to be five-tenths. In the first generation 50 per cent. of the inheritance is from the breeding farm herd, the second generation 75 per cent. the third generation $87\frac{1}{2}$ per cent. and in all following generation grade animals have over 90 per cent. of their inheritance

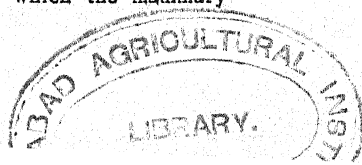
from the cattle of the breeding farm. After the seventh generation, more than 99 per cent. of the inheritance is that of the breeding farm. The solid curve in the chart approaches an asymptote for an infinite number of generations (curve AG comes closer and closer to line BF, but never joins it). It is from this phenomenon that the commonly expressed principle probably arose that the best of grade bulls, even after many generations of grading, should never be used for breeding. Even though we assume that the herd of the cattle breeding farm, as a "pure" bred herd, is distinctly different from the grade cattle in the villages, it may well become the limiting factor, as shown in the chart, after several generations of cattle improvement. Progress will be retarded because the quality of the bulls supplied from central breeding farms does not improve as the village cattle improve.

Two of the objects of a central cattle breeding farm are:—

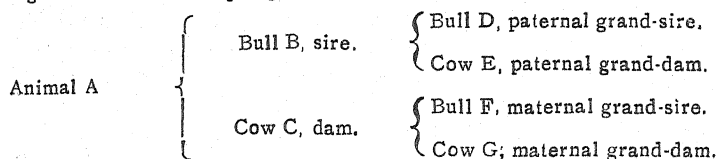
1. To supply bulls to improve the cattle in the districts.

2. To improve the cattle maintained on the farm thereby making a contribution to the breed in the country as a whole. This discussion has concerned itself thus far with the first-named object. An isolated herd can be of little value to the country. If cattle breeding farms, both Government and private, which breed superior animals, are enabled to finance the rearing, distribution and supervision of stud bulls intensively in certain districts, greater and more permanent influence will result than if they are diffused throughout a large area. Every pedigreed herd should be a means of improving the cattle in its vicinity. However, the two objects cited above should be part of the same programme. It was stated in the previous paragraph that the quality of the stud bulls available for supply may become the limiting factor in the improvement of village cattle. There is grave danger that because of the great demand and insufficient supply at the present time, inferior bulls will be supplied in many districts. *Purchased bulls, selected for type without knowledge of their pedigrees, can never become the basis for any considerable improvement.* They are certain to cause many disappointments, and perhaps eventually discourage many persons who have recently become enthusiastically interested in cattle breeding because of the popular appeal. It would be better if the funds being invested in purchasing bulls of unknown ancestry in the villages were used to rear properly more pedigreed bulls to be ready for service three years from now.

Thus far, such improvement of cattle on breeding farms as has occurred has been by means of type and pedigree selection. Actually, the type of a bull tells little about his superiority as a dairy sire. Score cards with scale of points, do not form a sure method of selecting good breeding animals, no matter how beautiful the animals they describe. There may be certain points in appearance which have some relationship to milk producing ability. However, this correlation is certainly very low. It is for this reason that progress in breeding for milk production has been slower than breeding for other useful purposes. Draught or beef quality may be seen in both sexes. Unfortunately bulls do not produce milk. It is possible to measure this ability in only one sex, yet both sexes contribute to the inheritance of milch cows. *Men who are the best cattle judges are unable from appearance only to select bulls accurately according to their dairy qualities* Mistakes are frequently made even in choosing cows, in which the mammary development offers more means for selection.



A pedigree is of considerable help in selecting a bull which is likely to prove a good breeder. The pedigree of animal A is written as follows :



This may be continued for as many generations as the information covers.

The fact that a bull has a pedigree is of little value to a prospective purchaser, if there is no record of the quality of the animals in the pedigree, considering the purpose for which they are bred. Milk-production of cows is best measured by the milk yield in lactation not exceeding one year in length. Although not often the case, a pedigree may show the ancestry of inferior cattle as well as of superior animals. *Because an animal has a pedigree, per se, is no guarantee that the animal is a good one.* If the animal (A) has a pedigree containing the names (BCDEFG) known to be superior individuals and the animal (A) itself seems to conform to the superior character of these immediate ancestors, it may be accepted as an animal worth purchasing. If one desires to select a bull on the basis of his ancestry, two generations are usually enough to consider. The milk production of the dam (the mother) cow C, and that of the two grand-dams, cows E and G, are most important. If the milk yield of these three animals is poor, there is no need of going back farther into the ancestry. If these three have high production records to their credit, the chances of animal A being a good bull for a dairy herd are as good as may be expected from pedigree study alone. If bulls D and F are known to be representatives of high yielding families, such information is of value. However, pedigrees always end with at least one bull somewhere in the ancestry for which there is no information regarding the productive capacity of his dam. Such bulls always stand as a question mark in the pedigree. There is need to introduce into common use some means of evaluating the quality of a bull

If bulls are selected by means of their pedigrees, a certain amount of pedigree may well be expected. In fact, most of the improvement in dairy cattle which has been attained, has been by the use of pedigree selection of herd sires. If breeding males are selected at random in an inter-breeding population, little progress will result, even though only good females are selected on the basis of their milk yield. There is little selection of females in India except on certain cattle breeding farms. The progress which may be obtained by means of pedigree selection of bulls is shown in the chart as line BE. Such improvement in the level of excellence of the cattle of the breeding farm will reflect itself as better quality in the grade cattle in the villages. Thus the improvement of village cows as shown by curve AG, will be raised by bulls from breeding farms practising pedigree selection. Greater improvement will accrue than by the continuous supply of bulls which generation by generation are not improving in excellence, such as might be obtained by purchasing stud bulls from good livestock areas and shipping them to poor areas.

When we go into market to buy a bull or a cow, or decide not to discard a heifer or bull calf from our farm herd, we base our judgment on the appearance or on the pedigree of the animal or both. If the cow does not live up to our first hopes, as many do not, and has a low milk yield in her first lactation we may give her a second chance, but would surely sell her before third lactation. To

retain such a cow in a commercial herd would mean financial ruin. The bull which we chose by appearance and pedigree with the same high hopes may also be a failure, but we keep on using him in ignorance as long as he will breed, or at least until his daughters are ready to be served. The first Sindhi bull which was furnished to the Allahabad Agricultural Institute from Karachi decreased the milk production of his daughters below their dams, the foundation Sindhi cows, an average of 250 lbs. per lactation, a serious set-back at the beginning which has affected the Institute's whole breeding programme. A similar instance is graphically illustrated by a chart at the Kankrej Breeding Farm Surat in which after three generations of progress the milk production was decidedly decreased in the fourth generation by using a bull which reduced the yield of all his daughters. This may happen in any herd. Herds have been ruined by such bulls. Yet great strides have been made when good sires have been found. When we try to select a good cow by the best means we have at hand, and fail, we at least know about it. Under ordinary conditions, out of every 100 heifer calves we must retain at least 50 to become mature cows in the herd, if we are to maintain the numerical strength of the herd, without continued purchase of female stock. Under the same conditions, out of every 100 head of male stock we need not save for breeding purposes more than three bull calves. It would seem therefore that we might make a much more careful choice in the case of the herd sire than with the cows of the herd. This advantage in choosing the male parent which will have many times more influence than any one cow in our future herd, is largely lost because we have no way to check our forecast, no way of knowing whether or not he is as good a bull as we thought he was going to be. We may know this after he has sired many low producing daughters to remain in our herd. Or, if we only knew, we might use the good bull far more intensively than we otherwise would.

The "progeny test" systematically seeks to find superior bulls, so that their usefulness may be prolonged and increased. The progeny test discovers poor bulls so that they cannot undo the improvement gained through good sires in the herd. It provides for the evaluation of every bull worthy of being tried, and leaves less to chance. In a former paragraph the objects of cattle breeding farm are stated to be to supply bulls to improve village cattle, and to improve the breed. As long as animals are selected and improved only by appearance and pedigree, these two functions of a cattle breeding farm may be carried on somewhat independently. However, if many bulls are to be tried out and their offspring compared, liaison must be maintained between rural development by better bulls and breeding research at cattle farms. *Using improved bulls to grade up poor village cattle, and breeding for high producing cows on special cattle-breeding farms should not be divorced.* Bulls placed in village herds must not lose their identity nor their connection with the breeding herd, but should be subject to recall as proved sires, improving the village cattle at the same time. There is much talk about helping the villager by giving him better bull, from breeding farms. There is possibly no way to add more to the material well-being of the Indian peasant, than by grading up his cattle by means of improved bulls, but when viewed in the light of our desire to improve the cattle of India, we may consider it a privilege (if it can be financed) to place bulls in the villages to try them out, to study the relative increase or decrease in milk production of the daughters of different bulls or the draught type of their male offspring. Every one knows that bulls from a cattle breeding farm can raise the standard of village cattle, but few seem to realise that the service may be mutual that the village cattle may be of help in improving the cattle on special breeding

farms. If we are accurately to evaluate a dairy bull, we must have accurate records of milk production of the cow which he serves, and of his daughters. Ways and means of obtaining dependable data about village cattle must be devised. Economical systems of permanently making each village cow and calf, weighing sample milkings and tabulating results must be worked out. The Allahabad Agricultural Institute has been working on these problems for some time. The results may be reported later.

The progeny test need not be limited to the milch breeds. Bullocks which are sons of different bulls may be compared to see which bulls have sired the best bullocks. For this purpose a dynamo-meter for measuring the pulling power of bullocks, as has been done with horses in the United States of America may be used. An apparatus of this kind has been designed at the Allahabad Agricultural Institute, with a view to testing bullocks.

The purpose of a breeding bull is to produce good offspring. The best way to measure any phenomenon of nature is to measure that phenomenon, itself, directly, and not to measure another related to it. Breeders have long sought to measure breeding bulls by pedigree and appearance. These sometimes fail. They help, but the final and sure way to measure the quality of offspring a bull may produce is *by the quality of his offspring*! This is a simple concept, yet one about which little has been done. Some Government Breeding Farms are trying to prove bulls in their own herds, but this system does not permit proving enough bulls nor provide for their continuous service. It is not the best plan to allow a young bull a few services at two or three years of age, and then keep him until these offspring mature before he is given active service or discarded. Further, the bulls which are failures leave their poor offspring as part of the herd for the next generation. When it is considered how few calves each cow may produce in her lifetime, not many cows of such quality as to be maintained in a farm herd should be wasted by using them for proving bulls.

The system in India of furnishing bulls from Central farms affords an ideal opportunity to put the progeny test into operation. It is important that in all cases it be clearly understood that the breeding farm retains the right.

- (1) to reject any bull at any time.
- (2) to change bulls from village to village, or
- (3) to recall a bull from village service to the breeding farm whenever it is of benefit to the breeding programme as a whole to do so.

Systems of placing bulls in villages which do not make definite arrangement for these points cannot be of any great value in the proving of sires. If bulls are sold or in any way immediately or eventually become the property of the village cattle-owners and no definite lien on them is retained by the cattle breeding farm, it may be very difficult at times to re-possess bulls for any reason either because their offspring indicate them to be of inferior quality for breeding or because they are proven to be superior individuals for siring offspring of high excellence and should be used for improving the cattle of the breeding farm. Bulls may be left in one village too long, and thus serve their own progeny. As a general breeding policy in the villages, such close inbreeding is not to be recommended. The breeding farm should not exercise its right to do as it pleases with bulls too frequently, but for the proper working of the scheme, a certain amount of change from time to time is necessary. No bull should be left in a village longer than three years, for after this period he may serve his own daughters.

It has been said that it is unfair to the villagers that their cattle should be a means of trying out bulls, and the people may lose confidence in the central cattle farm. The reply may be given that the village cattle are not being used only for proving bulls. It is a distinct service to the village to have these breeding bulls placed there. To help in proving bulls is an opportunity for the village to reciprocate the service done by the breeding farm. It is an opportunity for mutual helpfulness. Certainly if a bull is worthy of being closely supervised and the milk production of his daughters and of the cows to which he is mated recorded, it is probable that he is better than a bull which is merely turned loose in the village with little or no further attention.

A breeding farm cannot use continuously all bulls which it desires to retain because they might be needed. Too many valuable bulls are sold which cannot be bought back. More valuable bulls will be placed in the villages if this can be done subject to recall when needed, than if the only way is by outright sale. The most valuable young bulls, which may be needed for breeding in the central breeding farm itself but not immediately and which the farm would not consider selling, will be placed in nearby villages where trustworthy men will care for them.

It is to the advantage of all villages receiving bulls from a certain breeding farm, that the cattle of that breeding farm continue to improve. The improvement of a breeding farm herd by means of proved sires, in addition to the usual means of cow selection and pedigree and type selection of bulls is shown in the chart by the broken line BC. It will be noticed that the corresponding broken curve AD is considerably raised because the village cows are being graded by bulls from herds using proved sires. Such village cattle may even become superior to breeding farm herds improved by ordinary means. Any temporary advantage to an individual villager in keeping a superior proved bull instead of returning him to the breeding farm will after a period of years be surpassed by the advantage not only to him but also to all the villages receiving bulls from the breeding farm.

Another difficulty is the danger of bulls placed in villages contracting the disease and the possibility of their loss by death or their becoming infertile. They may become a source of infection to the cattle of the breeding herd if and when they are returned. Adequate veterinary advice and care should of course be available, and is available in most provinces of British India. Immunisation as far as feasible should be practised.

In many cases the animals may acquire immunity in the village to many diseases to which they may be exposed. At times when villages give notice that they are temporarily unable to care for a bull properly, he may be taken back for a brief period. Before a bull is brought back from a village into the breeding herd, he should be tested for such diseases as contagious abortion, tuberculosis and John's disease, and kept in isolation under observation for several weeks. In addition to this it must be remembered that if the purpose is to produce a breed suitable for villages as well as for special herds, this selection of the bulls on the basis of their ability to endure village conditions is of value. Those which do not survive may not be worthy of survival.

The criticism has been given that the village cows are of such unknown and varied genetic constitution that the system of proving bulls herein advocated would not be applicable. We may answer that even though we know nothing of the genetic constitution or the milk production of the cows, if we have enough offspring from each bull we may rate the bulls on this basis. Of course, if there

is any reason to believe that one bull had been mated with distinctly better cows than another, it should be taken into consideration that the female parent may be the cause of at least part of the superiority of that bull's offspring. However, the milk production of one daughter from an unknown dam may be as good as indication of a bull's breeding value for milk production as the milk production of his dam when his sire's milk transmitting ability is quite unknown. Frequently the advice is to select a bull from a good cow, even though little is known of his sire. This advice usually is extended to include the sire's dam and the dam's dam also, if their records are available. Why then are not the daughters of a bull as valuable an index of his breeding ability for milk production as are his nearest female ancestors? Further, a bull can have only one dam and two grand-dams by which to judge his possible transmitting ability for milk production. He may have many daughters. It has been estimated that to "prove" a sire the minimum number of daughters' and dams' lactation milk yields to be averaged for comparison should be six. No known record should be discarded. The more samples one has in any test, the more accurate is the average.

Related animals of the same generation, such as sisters, half sisters and cousins, do not fit in as part of the pedigree nor as progeny; yet they, also, may be valuable to indicate the potential dairy quality of a young bull. Little has been done to devise methods of using such related females to make a quantitative evaluation of a bull.

Even though the progeny test for a bull is of value when the cows which he serves are not known or are not considered, it can be made more accurate by evaluating them also. The milk production of the dams is a good indication of their share of the milk producing ability which the daughters have inherited through both dams and sire. If any desired character is sufficiently quantitative to be measured, it can be taken into consideration and allowance made for the contribution of the dams to the offspring when the progeny test is applied to the sire. This is possible with regard to the milk production of village cows even though they may vary much. In most cases the cows in any one area tend to be similar. There is a great deal of inbreeding in some localities, which increases genetic homozygosity, and makes the cattle within each village more nearly alike. Assuming that there is too much variability among village cows at the beginning of this programme, after one or two generations of grading the cows will be more alike, and the cause for this criticism will progressively decrease.

It is also asserted that most of the proved sires are dead, that by the time a bull's daughters' milk yields are known, the bull may be too old for further service. There is foundation for this criticism, but the causes for it can be overcome by improving the breeding, feeding and management of the cattle, so that they attain sufficient size and reach sexual maturity at an earlier age. Indian cattle have not been selected for early maturity, nor are they cared for in such a way as to induce rapid growth and development, but if this is done bulls may serve at an earlier age and heifers calve younger, thereby increasing the length of service obtainable from a bull after his oldest daughters have completed their first lactations. Early maturing animals will prove to be more economical, also; if the period of growth, which is a period of unproductivity, can be shortened.

The progeny test was used by the earliest English breeders, but has only recently been advanced as a means of preventing the disastrous effects of the occasional poor bull in dairy cattle breeding which may ruin the work of years, as well as a means of finding the superior bull. In Western countries the problem is that no informed breeder wants to do the "proving" of sires for some-

one else. In India we can do a great service in the villages and at the same time set up an ideal situation for using the progeny test, using it to improve the breeds of Indian cattle. The average "daughter-dam difference", with milk yields standardised for length of lactation and age of the cow, is useful in computing the relative value of the different sires. The milk production of a bull's daughters and the draught type of his sons will tell far more than his ancestry about his breeding ability, *even more than seeing the bull himself*.

A co-operative system of improving the cattle of central breeding farms and of poor village peasants, the principles of which are herein outlined, is one in which all may have a share. It is a way whereby *Zamindars* may improve the cattle in their villages without philanthropy. The benefits are mutual to the owner of the cattle breeding farm and to the village. The principles involved in carrying out such a plan are not beyond the ability of any intelligent man to understand, whether he has studied advanced animal genetics or not. We should do away with the haphazard purchase and distribution to villages of male farm animals of all species. Unless a continuous and progressive plan, based on these principles, is instituted, very little will be achieved. Such a plan will be both scientific and practical. It is worthy of trial by all Government and private farms which seek to improve the village cattle and the Indian breeds.

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To His Excellency Lord Linlithgow, Viceroy of India, breeder of cattle, the writer wishes to tender his sincere thanks for calling the attention of the people of India to the importance of cattle breeding, thereby giving to Government and private workers, who have long wrestled with these problems, an unprecedented opportunity to advance the welfare of the nation through this field of endeavour. It is clearly evident that the cattle improvement scheme initiated by His Excellency has been outlined giving full consideration to the principles which are presented herein.

The writer desires, also, to acknowledge the help received from Dr. J. L. Lush, Professor of Animal Genetics at Iowa State College, in classes, in conversation, in letters and in publications. Dr. Lush is the source of many of the ideas presented at this time.

LIVESTOCK IMPROVEMENT

The Director of Public Information estimates the annual value of animal products in India at over two thousand crores of rupees—a sum which seems incredible. But when we take into consideration the fact that our livestock resources consist of more than 3,000,000 animals, the figure does not appear to be exaggerated. India, in fact, holds the first place among the countries of the world in the matter of livestock wealth and she has nearly twice as many animals as the United States. Despite, however, her vast resources, it is well known that the quality of her cattle is much poorer than that of cattle in the United States or Holland. For many decades little or no attention was paid to the improvement of cattle and only recently have the Government come forward to help the agriculturists to rear a better stock of animals. The State in ancient India attached considerable importance to the quality of the livestock and we have it on the authority of Kautilya's *Artha Sastra* that in those days there

existed a separate department of government concerned with live-stock, one of whose officials was a Superintendent of Pasture Lands. We have to-day no pasture lands worth mention and to suggest the appointment of a Superintendent for them would look fantastic. And yet, more than any other single cause, the shrinkage in the extent of pasture lands near villages has been responsible for the deterioration of our cattle. The increasing pressure of population on the land, the grazing and forest laws of the Government, the growing poverty of the people and other causes combined to reduce the area of pasture lands available for grazing. The Government do not appear to have fully appreciated the importance of securing adequate pasture lands in any scheme for improvement of livestock. The Director of Public Information observes in his note published elsewhere: "It is well known that however well-bred a cow may be her milk will depend on whether she is adequately fed. In fact it has been found that the yield of ordinary indigenous cows can be increased by 50 per cent with proper feeding and management." He describes certain tests being carried out in different provinces to find out the relative value as feeds of various fodder crops, pastures, grains and oil-seeds. If the results of these experiments are to be of use to the villagers there should be a reversal of that policy (or lack of it) which has led to the disappearance of those free grazing lands attached to the village, which formed a vital part of ancient Indian village economy. This means that more fundamental measures than what the Government now contemplate are needed to secure a real and general improvement in the quality of our livestock.

"HINDU" (*Leaderette*),
15-9-36.

LIVESTOCK WEALTH OF INDIA

PROMOTION OF ANIMAL HUSBANDRY.

Improvement Schemes in Operation

A sum exceeding two thousand crores of rupees—this is the estimated annual cash value of India's animal products. The figure may indeed appear to be incredibly high; in fact it is probably larger than the value of her cash crops. But India possesses a far larger number of animals than any country in the world, (says a press note issued by the Director of Public Information, Simla).

The total is over 300,000,000, or nearly double that in the United States of America. These are some of the facts which make it abundantly clear that the development of animal husbandry work in India might go a long way in solving the economic difficulties of the country, and show how correct the Viceroy was when he said, presenting 3 pedigree bulls for use in the Delhi district, "The cow and the bullock have on their patient back the whole structure of Indian agriculture."

Many aspects of this great problem are essentially the care of the Provincial Governments, and have been so since agriculture became a Transferred Provincial Subject under the Montagu-Chelmsford Reforms. The responsibility of the Central Government is, indeed, definitely limited. But in their work for the general promotion of livestock improvement, the Provincial Governments are assisted by the Central Government both through the Imperial Council of Agricultural Research and the central research institute such as the Imperial Institute of Agricultural Research and Imperial Institute of Veterinary Research,

Muktesar, etc., particularly in the matter of research, technical training, and the investigation and control of disease. A number of improvement schemes have accordingly been initiated by the Council, and important results are being obtained.

Disease Research

For a systematic investigation of local conditions in regard to diseases of livestock, so that the most practicable methods of treatment and control may be evolved, every Province has now got its own disease investigation officers, and the information already collected has proved to be of very great value. The Imperial Council of Agricultural Research, too, has made a number of grants for specific schemes on these lines in the Provinces, including the study of vaccination methods for the protection of cattle against rinderpest and the investigation of Johnes' Disease amongst dairy cattle. As a result of the work thus carried out on rinderpest, a vaccine has now been evolved, which confers lasting immunity at a small price. Tests carried on an extensive scale in different parts of the country, have been universally successful. Three other important research projects in the investigation of cattle diseases have also been initiated by the Council at Muktesar, covering the investigation of tuberculosis and of contagious abortion amongst cattle and an examination of Warble flies.

An important step taken in another direction to implement the work of cattle improvement, is the arrangements made for the promotion of nutrition research. It is well known that however well-bred a cow may be her milk yield will depend on whether she is adequately fed. In fact, it has been found that the yield of ordinary indigenous cows can be increased by 50 per cent with proper feeding and management. With the grants made by the Imperial Council of Agricultural Research, tests are being carried on in Bengal, Madras, the Punjab, the United Provinces, and Bihar to find out the relative value as feeds for working bullocks and dairy cattle of various fodder crops, pastures, grains, and oilseeds, and the recent establishment of a separate Animal Nutrition Research Institution at Izatnagar in Bareilly, under the control of the Director of Veterinary Research Institute at Muktesar, is likely to carry these nutrition researches much further than was hitherto possible.

Breeding Schemes

Among the animal breeding schemes started recently with the help of grants made by the Imperial Council of Agricultural Research is a scheme of goat breeding at Etah in the United Provinces, where the extension of the valuable Jumna-Pari breed of goats is giving valuable results. In the Punjab, and Bombay, sheep breeding schemes have been subsidised to improve the quality of indigenous sheep. Poultry breeding schemes have also been launched in these Provinces and methods for combating poultry diseases are under investigation at the Poultry Institute at Izatnagar.

The cattle breeding is, perhaps, the most important branch of animal husbandry work, as it certainly is the most popular. The work done in this direction in the Provinces has already begun to bear fruit, particularly in certain districts of the Punjab, where there is already a noticeable improvement in the local cattle. The search for a good general-purpose animal continues, and in the Hariana and Dhanni breeds useful material has been found. In the matter of breeding the policy now followed is one of specialisation. Thus, in the natural grazing areas where the development of dairy industry would not be possible, efforts are concentrated on breeding for speed and working capacity, whereas in an area suitable

for development of dairy industry on modern lines, breeding is conducted solely to secure the highest possible milk yields. This, it is hoped, will go a long way in ensuring a supply of high grade sires to meet the particular needs of cultivators.

There are now many methods of encouraging improved breeding. The Punjab has a system of grantee farms, land being distributed specifically for cattle breeding purposes, and it is noteworthy that on some of these farms cows yielding over 4,000 lbs. in a lactation are common. Another method is the distribution of bulls from the Hissar farm at concessional rates to District Boards and Zamindars. The number of approved stud bulls thus distributed in the Provinces, is now over 5,000. Work on similar lines is being done in other Provinces, too. It is, however, essential that the progeny of pedigree sires should be registered, if a steady improvement in the stud stock is to be maintained, and the Council is already working out a scheme to that end.

Improvement of Dairy Methods

Amongst other lines of work undertaken by the Council for the promotion of animal husbandry, mention may be made of the expansion made in the Imperial Dairy Institute at Bangalore, and of the establishment at Anand of an experimental creamery, with special grants made by the Council, to study commercial methods of dairying and the question of processing and transporting of milk. Dairy training is also provided at these places. An Animal Husbandry Bureau has also been established, where information is being collected from Military and other Government dairies about the economic efficiency of different types of cattle, and researches have been initiated at Allahabad and Bangalore to examine the composition of nutritive milk of cows, buffaloes, and goats.

"Hindu", 15-9-'36.

CATTLE IMPROVEMENT IN INDIA

NEED FOR A BROADER VISION

(FROM OUR CORRESPONDENT.)

(SIMLA By Mail)

"It is astonishing that through the ages, in India, while the greatest attention has been bestowed on the bull or the working ox, complete neglect has been the common lot of the cow and its female progeny," said Col. A. Olver, C.B., C.M.G., making a vigorous plea for the improvement of Indian milch-cattle, in the course of a broadcast address from Delhi on Friday last.

The following are extracts from Col. Oliver's address:—

It should be obvious that any agricultural policy which neglects the proper development of its livestock resources and of its dairy industry must in the long run prove to be unsound and that, in view of the low level to which so many of the cattle have fallen, the Viceroy's cattle improvement drive should prove a matter of the utmost importance to India, if properly carried through. It is now clear that to reap full and lasting benefit from such a drive the work must be systematically controlled by suitable animal husbandry organisations, covering the whole country, and that the breeding and rearing of good, serviceable cattle must become an integral part of a properly balanced system of agriculture,

In recent years, nutrition research has more and more shown that the human race cannot live and develop satisfactorily on vegetable products alone, and the result has been that farm livestock and their products have become of steadily increasing importance in the economy of the civilised world. The production of efficient cattle for work and for dairying, all over the country, is a matter of huge economic and social importance. But while great attention has been paid, by the professional breeders of the barani breeding tracts, to the production of working bullocks for sale, little attempt has been made to care for and systematically improve the cow.

Within the last 20 years, simply by proper feeding and management combined with strictly controlled breeding, the average milk-yield of several herds of purer bred indigenous cows in India has been raised from 5'3 lbs. to 16'8 lbs. per diem. With more forcing methods, such as special handling, very frequent milking and very high feeding, which are commonly employed by pedigree breeders of dairy cattle in other countries to obtain records, there is little doubt that still higher yields could have been obtained. With the advent of motor transport the market for the comparatively light, but active, quick-moving cattle, which were in the past so much prized, has contracted to a very appreciable extent and far-seeing breeders of even such famous work breeds as the Amrat Mahal and the Kangayan of South India, have already begun to turn their attention to the development of milking strains within these breeds. This, in my view, is a very significant sign of the times and, with the rapid spread of portable cream separators, which is now taking place in various parts of India, the productions of milk and ghee from cows which have in any case to be maintained for the breeding of work bullocks, seems likely to become more important as a subsidiary source of income. Indeed in certain tracts where an abundance of grass is produced during and after the monsoon, the production of ghee mainly from she-buffaloes has been so developed by the introduction of these separators that it has now become the main source of livelihood.

Importance of Pedigree

Wherever cattle are maintained mainly on grazing and the cows receive little or no extra food, the milk-yield of the best of them can never be high; every dairyman knows that to make a reasonable profit he must have not only the best sows he can afford to buy but he must feed them highly. Yet in India few seem to realise that the best way of carrying on a dairy business economically, year after year, is to build up pure-bred herds of high-yielding dairy cattle which can be relied upon to breed true for high-milk production, generation after generation. For this purpose, in addition to good and well-bred cows, it is essential to use pedigree sires, from strains bred essentially for milk, and to feed the progeny well from birth. It will not do to use a milch strain bull at one time and a bull with no milking pedigree at another. In that way only nondescript stock can be produced which can never be relied upon to produce either high-yielding cows or high-grade working bullocks; for that reason the Viceroy has rightly laid particular stress on the importance of pedigree in his drive for the improvement of cattle. It is an unfortunate fact that many of the most valuable milch cows, which under scientific breeding control might form the basis of high-yielding strains, are sold to city dairies where they may be mated with any scrub bulls, the progeny usually being allowed to die as soon as they have served the purpose of inducing their mothers to give their milk to the dairyman.

No industry can hope to progress where such things are permitted ; and it is astounding that such a condition of affairs should be countenanced in a country where the cow is regarded as an object worthy of reverence. It is also astonishing that, through the ages, while the greatest attention has been bestowed in India on the bull and the working ox complete neglect has been the common lot of the cow and its female progeny. Indeed, it is only comparatively recently that, by publication of the results of sympathetic breeding and feeding, carried on by organisations such as the Military Dairy and other Government Farms, attention has been drawn to the fact that, by careful selection and breeding control and by quite ordinary methods of feeding, handling and management—such as are the routine practice in other countries—selected pure-bred cows of several Indian breeds could be made a most valuable source of additional income to cultivators.

Plea for Purer Milk

Since in recent years the great value of pure cow's milk as food for growing children has become fully recognised, it seems clear that the people of India should pay more attention to the cow and that the women in particular should insist on more effective measures being adopted to heavily penalise the systematic adulteration of this essential body-building and health-giving food regularly practised throughout India. The tragedy of it is that while enabling corrupt milk vendors to make handsome incomes, it renders it impossible for sound milk producers to carry on proper dairy farming with reasonable profit. Indeed, so long as adulteration goes on unchecked, so long will it be impossible to develop a sound supply of milk and dairy products, produced under the clean and sanitary conditions which are nowadays insisted on in all progressive countries. Thus I feel that throughout India it should be a sacred duty for every good cultivator, of whatever creed, to keep at least one good cow, feed her and her progeny well under the stall-fed conditions—which all progressive countries have been forced to adopt—and to mate her with a good bull of her own breed and type. By this means, he could provide an increased supply of good milk for the development of his family and produce rich manure for his land.

As a corollary to this, Local Governments should make adequate provision for systematic selection and maintenance of the best bulls available for free service in the villages, all over the country, and for properly controlled registration and marking of approved cattle at veterinary hospitals or similar institution, combined with free inoculation of such stock against contagious diseases and proper sterilization of inferior males, under veterinary supervision.

If this were done and the uneconomic cattle which are at present a burden on the country could be eliminated the problem of cattle improvement in India could soon be solved. I feel, therefore, that every effort should be made to develop the worship of the cow on these lines.

Hindu,—25-9-36.

'ACAPRIN'

in the chemotherapy of piroplasmosis

BY

PROF. WALTER KIKUTH (WUPPERTAL-GERMANY).

(Abstracted from *Zentr. f. Bakt. u. Parasit. u. Infekt.*)

In a meeting of the Deutsche Vereinigung fuer Mikrobiologie held in Berlin on 26-28th May 1935 the author discussed the problem of the therapy of piroplasmosis. In his review of the problem he drew attention to the fact that until 1909 there was no specific therapy of this malady, and that with the introduction of Trypanblue in 1909 a new and promising vista was for the first time opened out. However, the author points out that although Trypanblue has remained up to this day the most popular remedy for this malady, there is no unanimity among the workers regarding its efficacy. This is due to the fact that while a great number of authors confirm its efficacy in the treatment of piroplasmosis, there are as many who challenge the claim on the basis of their experimental results. This discrepancy, the author explains, by the fact that Trypanblue is effective only in certain forms of babesia while in others it produces no effect whatsoever.

The author then discusses some of the disadvantages of Trypanblue therapy, which are considered as sufficient handicap to its extensive application. Thus to start with, Trypanblue must be injected intravenously, because subcutaneous injection may lead to abscess, phlebitis, phlegmones and necrosis. Further it discolours (blue) the animal even after a single injection. Milk also shows the discolouration. Again, Trypanblue may cause abortion in pregnant animals. Finally, in cases of mixed infections with theileriasis or anaplasmosis, one may succeed in healing piroplasmosis, but haematologically as well as clinically, the theileriasis or the anaplasmosis is very often aggravated.

In view of the disadvantages discussed above, quite a number of specific agents have lately been introduced to fight piroplasmosis. Of these, Trypaflavin, according to the author, although representing a fundamental progress in the chemotherapy of piroplasmosis is not, however, entirely satisfactory; for, in the first place it has to be injected intravenously with its necessary inconvenience and potential danger such as paravenous application and its sequelae. Secondly, as with Trypanblue, Trypaflavin also produces a temporary discolouration (yellow) of the tissues, although not so strongly as Trypanblue. Finally, Trypaflavin is a very expensive drug.

The author then discusses the value of 'Acaprin' and considers this to be the best so far introduced for the treatment of piroplasmosis. Acaprin is a faintly yellow powder easily soluble in water. Intramuscularly as well as subcutaneously, injections are well tolerated. Acaprin has been extensively tested clinically in various countries during the last three years by a great number of workers; it has been tried in every kind of piroplasmosis and the results are entirely satisfactory.

As the author says "In the introduction of Acaprin I find a definite progress in the chemotherapy of piroplasmosis." According to the author's experiments Acaprin, in the infection of dogs (*B. canis*), is 80 times more effective than Trypaflavin; the chemotherapeutic index is also 8 times that of Trypaflavin (measured in absolute number). Compared with Trypaflavin, the clinical effect of Acaprin is somewhat slower; it is however, more lasting.

Further, due to the slow excretion of Acaprin, it constitutes a certain amount of prophylaxis. The colour of the animal's flesh also remains unchanged.

According to the clinical results, Acaprin is to be looked upon as a specific remedy for nearly all piroplasmosis. The following comparative table is interesting :

TABLE OF STATISTICS.

Forms of piroplasmosis.	Host	Trypan-blue.	Trypa-flavin	Aca-prin
<u>Group : Badesidae du Toit.</u>				
B. canis ...	Dog	+	++	++
B. bigemina Texas (fever) ...	Cattle	+	+	++
B. argentina ...		(+)	+	++
B. bovis (haemoglobinuria of cattle) ...		++	++	++
B. divergens (British Bovine Redwater) ...		0	—	+
B. (Babesiella) berbera. ...		0	+	++
B. caballi ...	Horse	+	+	++
B. equi (Nuttallia) ...		0	+	++
B. (Babesiella) ovis ...	Sheep	0	+	++
B. trautmanni (b. suis ?) ...	Swine	—	—	++
<u>Group : Theileridae du Toit.</u>				
Th. parva (African coast fever) ...	Cattle	0	0	—
Th. dispar ...		0	0	+
Th. annulata ...		0	0	+
Th. mutans (Gonderia-Pseudo-coast fever) ...		0	0	0

Summing up, Acaprin offers the following advantages :

1. As a remedy for piroplasmosis, Acaprin is superior to all chemotherapeutic preparations hitherto in use.
2. It has a specific reaction with nearly all forms of piroplasmosis of domestic animals.
3. It does not discolour the tissues.
4. It allows subcutaneous and intramuscular application.
5. It is simple in its manipulation.

‘ACAPRIN’

Trade Mark Brand

Aciron.

Chemico-physical Properties

‘Acaprin’ is N,N’—(dimethylquinolylum-methyl-sulphate-6)—urea and is prepared in a crystal clear sterile 5 per cent. solution ready for use.

Pharmacology

Both the general and local reactions when 'Acaprin' is given parenterally are, as a rule, free from any unpleasant by-effects. The pharmacological action of 'Acaprin', administered in toxic doses, consists of the stimulation of the sympathetic system and, in high doses, of the central nervous system. Thus, intravenous injections of 2 mg. per kilo cause in the rabbit a fall in blood pressure and intestinal contractions but even then the uterus is not affected. Subcutaneous injections of 1 mg. per kg. cause in cats salivation and contraction of the pupil. Larger doses excite the central nervous system.

The susceptibility of various animals to the toxic action of 'Acaprin' varies. Dogs are most susceptible; then follow horses, cattle and sheep in that order. Pigs appear to be most resistant.

Chemo-therapeutics

In fresh cases of piroplasmosis in the dog, 'Acaprin' has a therapeutic index of 1:32. Drugs hitherto used have had an index of 1:8 only in such cases. The babesia disappear from the blood 24 hours after treatment. In theileriasis 'Acaprin' acts on the Koch bodies in the spleen and liver but not on those in the blood, so that, in spite of rapid clinical improvement, the blood finding remains unchanged. The parasitocidal action of 'Acaprin' is, therefore, demonstrated by a puncture of the spleen or liver. The same applies to gonderia infection. The tissues are not stained by 'Acaprin'.

Clinical

In bovine piroplasmosis (*Babesia bigemina*—European piroplasmosis, Texas fever, tristeza of Latin America and *Babesia berbera*) the curative action of 'Acaprin' begins to be noticeable in a few hours, so that the urine clears up and the general condition quickly improves. The listlessness, dullness of the senses and the cardiac and respiratory disturbances pass away. The appetite returns and the raised temperature falls to normal. A single injection usually effects a cure in 24 hours.

In equine piroplasmosis (*Babesia caballi* and *Nuttallia equi*) in the Balkans, Asia and Eastern Europe, one injection is not always sufficient; the dose must be repeated at a renewed rise of temperature.

In piroplasmosis of sheep, pigs and dogs the results of a single injection appear to be favourable but the experiments are not yet complete.

In the theileriasis (*Theileria dispar* and *annulata*), which occur in the Mediterranean countries and Asia, a repetition of treatment—2 or 3 injections at intervals of 12—24 hours—is usually necessary. In African Coast Fever (*Theileria parva*), trials are not yet completed.

Subcutaneous or intramuscular injections are borne without any trouble, but after intravenous injections it is possible, in badly infected animals, for the body to be adversely affected by the sudden setting free of endotoxins from the killed parasites.

Secondary symptoms resulting from treatment with 'Acaprin' sometimes arise; they take the form of muscular disturbance, tremors, salivation, defaecation and lying down. They soon pass and are not dangerous.

A repetition of the injection after a long interval lowers the resistance to the toxic action of 'Acaprin' and even one-half of the initial dose may prove lethal.

By overdosage of 'Acaprin' up to twice the normal dose, signs of poisoning appear. In horses, cattle and pigs these manifest themselves by dyspnoea, distress and collapse apart (from the secondary symptoms mentioned above). The toxic effects appear 15—30 minutes after injection and may cause death at once or after some hours (up to 18). Death is due to heart failure. At autopsy one finds sero-sanguineous fluid in the body cavities, petechiae on the serous membranes and epicardium, acute plumonary oedema and congestion of the intestine.

Indications

Piropasmosis of cattle caused by *Babesia bigemina*, *Babesiella berbera*, *columbiana* etc., *Theileria dispar* and *annulata* i.e. practically all the piropasmosis of cattle.*

Piropasmosis of the horse caused by *Babesia caballi* and *Nutallia equi*.

Piropasmosis of sheep, pigs and dogs.

Application

The solution in the 6 c. c. ampoules is intended for farm animals. Only for dogs is it necessary to dilute the solution (1:10) with distilled water.

'Acaprin' is injected subcutaneously or intramuscularly. *It is not suited for intravenous injection.*

The doses in the following table refer to the original solution except in the case of dogs where the dose given refers to the diluted solution.

Animal	Dose per 100 kg. (2 cwt.)	Dose per animal of
Ox	2 c. c.	500 kg. (10 cwt.) 10 c. c.
Horse	1.2 c. c.	500 kg. (10 cwt.) 6 c. c.
Sheep	2.5 c. c.—5 c. c.	40 kg. (90 lbs.) 1-2 c. c.
Pig	5 c. c.	60 kg. (130 lbs.) 3 c. c.
Dog	5 c. c. in a 10 per cent. disolution	20 kg. (45 lbs.) 1 c. c. (10% sol.)

* In African Coast Fever (East Coast Fever) caused by *Theileria parva*, the value of the product has not yet been sufficiently determined.

It is advisable to warn the owner of the possible by-effects:—restlessness, tremors, recumbency, salivation and defaecation. These symptoms are suitably treated by subcutaneous injections of 'Rephrin' (3-10 c. c. according to size and severity). The 'Acaprin' injection may be repeated if necessary (equine piropasmosis and theileriasis) by an equal dose after an interval of 24 hours but it must not be repeated after an interval of from 2 weeks to 3 months (See under "Clinical"). For the speeding up of productivity after recovery from piropasmosis or theileriasis, the tonics 'Aricyl' or 'Tonophosphan' are recommended.

Packing

'Acaprin' is sold in boxes containing 6 ampoules of 6 c. c. Rs. 5 7 0

Special packing for-use in dogs,

10 amp. of 1 c. c.

Rs. 3 4 0

(Subject to Trade discount)

ANIMAL HUSBANDRY**IMPORTANCE TO INDIA**

(ASSOCIATED PRESS OF INDIA)

Simla, (By Mail)

An appeal to all patriotic citizens of India to take a much more active interest in organized Animal Husbandry, was made by Colonel A. Olver, Animal Husbandry Expert, Imperial Council of Agricultural Research, in his broadcast speech on 'Some Aspects of Animal Husbandry in India.'

Col. Olver defined 'Animal Husbandry' as the breeding, care and management of livestock and the preparation of their products for market, for which sciences of veterinary medicine, animal nutrition and animal genetics should be carefully applied. Development of the many processes which are involved in the satisfactory preservation, transportation and disposal of perishable animal products such as milk and dairy produce, meat and fish, wool and hair, eggs and poultry and hides and skins was also necessary. Another most important aspect of animal husbandry was the production and conservation of fodder crops, including the preservation of naturally grown grass and grazing areas.

The proper development of livestock and animal industry, said Colonel Olver, was a matter of the greatest economic importance and it would be much to the advantage of the people if more use were made of the cow, to provide the greatly increased supply of milk which was so urgently needed in India, and at the same time additional income for the household. In his opinion this could be done if more fodder crops were produced. The potentialities were thus immense and it seemed necessary to mention that the provision for animal husbandry in India was very inadequate compared with that of other countries. Recently the position had been improved by the allotment of grants by the Government of India but Government funds should not be the only source of assistance in such matters. India's backwardness in the development of her huge livestock resources was very largely due to the apathy of the people. In India, the cow was revered, great deal of money was spent on derelict stock and dedicated bulls—which unfortunately now-a-days were often of such poor quality as to do harm rather than good—but private owners made little attempt to carry on such breeding; though the want of sires, of known pedigree and high quality is obvious, Colonel Olver pointed out owing to the apathy of consumers and the difficulty of enforcing the law, such legislation as did exist, to ensure a clean and pure supply of milk, dairy produce and meat, was mostly a dead letter. The women of India in particular ought to take strong action, to ensure an adequate supply of unadulterated milk and dairy health of their children. It had been produced for the development and health of their children. It had been calculated that at present the total consumption of milk in India amounts to only 11 oz. per adult per diem and in the United States of America the consumption was nearly 4 times as much while in some other countries it was even greater.

Dairy Industry

The speaker then referred to the Military Dairy Farm organisation and said already after less than 25 years of selective breeding and proper feeding certain herds had reached a point where they were able to compete successfully with the best European dairy cattle, in the economic production—in India—of standard milk and even with the Indian buffalo in the cost of production of butter-fat. It was high time that the people of India paid more attention to the dairy cow, as

distinct from the she-buffalo. At the same time Colonel Olver stressed whole cow's milk, even though it contained a comparatively low percentage of butter-fat, was much more valuable food than an equal quantity of rich buffalo milk watered down to the same level of fat. From a nutritional point of view it would be a great advantage if more unadulterated cow's milk were consumed rather than watered buffalos' milk and butter rather than ghee, while, skimmed and separated milk were very valuable food none of which should be wasted.

Other kinds of livestock such as sheep and goats was also worthy of considerable attention. Trade in hides and skins and in fish and fish products, were other examples of indigenous animal industries in which great improvements could be effected if more adequate. Animal Husbandry Departments were available. Indeed animal industry in India was one of the biggest key industries of the world, which everywhere needed organized development, on the lines which had proved so profitable in the most successful live-stock countries of the world.

The Hindu 15-6-36.

MYSORE VETERINARY CONFERENCE.

LEGISLATION FOR PURE MILK SUPPLY.

Need for Protection of Cattle.

(FROM OUR CORRESPONDENT.)

Bangalore, June 19.

The need for legislation to control the milk supply in the Mysore State was stressed by Mr. K. Krishna Iyengar, President of the Mysore Veterinary Association, on the occasion of the 8th Annual Conference of the Association this morning.

Sir Charles Todhunter, Private Secretary to His Highness the Maharaja of Mysore, who presided on the occasion, observed that there was a tremendous field for profitable enterprise in animal husbandry, and, incidentally, an ample field for the employment of members of the Veterinary profession. He paid a high tribute to the very good work done by the Department for the last ten years.

Major S. W. Marriot of the Army Service, who delivered the inaugural address, said that the Mysore Veterinary Department was second to none in India in regard to the excellence of its work.

The Conference was attended by members of the Veterinary profession from all parts of the State.

Mr. Krishna Iyengar's Address

Mr. Krishna Iyengar welcomed Sir Charles Todhunter and Major Marriot to the Conference and gave a short survey of the activities of the Department. Mr. Iyengar expressed the opinion that unless cruelty to animals was made punishable, the habit of showing kindness to animals would be restricted in practice. The times appeared propitious to start a society for the prevention of cruelty to animals in the large cities and towns.

Mr. Krishna Iyengar referred to the necessity of controlling the milk supply to the cities by legislation. The milk trade was in the hands of the local gollas (milkmen) and was very unsatisfactory. In all local self-government, departments

the care and control of food supply was a right charge on Municipal revenues. Milk was a very favourable vehicle for the communication of many diseases to man and the appalling infantile mortality—not to speak of adult mortality among women specially—was very high owing to unclean milk and unsatisfactory housing of milking cows obtaining in the cities and towns. He had, however, striven to impress on the authorities concerned, to co-ordinate qualified Veterinary Officers with the Medical Officers of Health in the routine inspection of meat and milk, but as it was a question of finance, such suggestions would take a considerably long time to mature and come to effect.

It should be the duty of the profession, he said, to continue that propaganda and show to the public the necessity and usefulness of such a step.

The Dewan Sahib, in his address at the prize distribution ceremony of the Bangalore Baby Week, had stressed the importance of milk supply, as a *sin qua non* of rearing healthy babies. Would it be too much to ask their Municipal authorities and the City fathers to discuss the question of clean and wholesome milk supply to the city and co-operate with this Association to draft a modest scheme for the construction of cow sheds and distribution of milk, under Municipal control?

Veterinary Department's Work

Mr. Krishna Iyengar then referred to the phenomenal results achieved by the Veterinary organization in the State. The mortality under the several serious contagious diseases of livestock had decreased enormously and Rinderpest, their once most serious disease of cattle, had almost been unknown during the current year.

There were 68 Veterinary Institutions in the State and their men touring in the village had carried Veterinary aid to the very door of the ryot and stock owner. They had also by their incessant propaganda been able to prevail upon eight Municipalities to employ qualified Veterinarians for inspection of animals meant for food and meat after slaughter.

Referring to the poultry industry, Mr. Krishna Iyengar said that it had increased during recent years and was becoming an important item in all village reconstruction schemes. Disease, however, was rife among them and much remained to be done in reducing the enormous losses. It was true that the industry was comparatively young and it was for them, younger men of the profession, to get fully equipped with fuller knowledge of the disease of poultry, to enable them to give the necessary advice for prevention of disease and control. It was hoped that eventually, they would be in a position to be of more assistance to them.

Care of Cattle

The investigation of diseases of livestock peculiar to the State had been carried on in the Research Section with Dr. Naidu at its head and he hoped that they would turn their attention to systematic and intensive study of the several other disease problems also and fully utilise the services of their experts and the well-equipped laboratories of the Serum Institute towards making the Veterinary Service in Mysore, an ideal and a model one.

Now that His Excellency the Viceroy was taking personal interest in the welfare of the livestock he hoped that there would be better times for Veterinary Services in future.

The marketing survey, continued Mr. Krishna Iyengar, that had recently been started in Mysore on livestock and their products marked an important step



in the Animal Husbandry work, and would, he was sure, reveal how inadequate the Veterinary Service was in Mysore, which was purely an agricultural and stock-breeding country.

The cattle trade alone amounted nearly to a crore of rupees, and if as a result of the survey, Government should stabilise this Department with a view to more systematically tackling the problems of control of disease by having quarantine stations on all cattle routes in and out of the State and man them by veterinarians, the problem of unemployment would to a large extent be solved.

Sir Charles Todhunter's Address

Sir Charles Todhunter, in the course of his opening address, observed that in ten years the number of their institutions had been more than doubled, so that they had now nearly one for every taluk in the State; the number of patients treated had increased more than fourfold and the number of operations in the same degree. At the same time, the number of inspectors was only $2\frac{1}{2}$ times what it was ten years ago, while the cost of the Department had not even been doubled, so that every officer was treating twice as many cases as his predecessor was ten years ago and doing it at half the cost.

Meanwhile, continued Sir Charles Todhunter, they had established their own Serum Institute and had protected nearly four million cattle by the Serum Simultaneous method and had reduced the mortality from rinderpest, which stood at over 28,000 in 1929 to a nil figure. He was glad to see that a cheaper and simpler substitute for this method had now been invented and hoped that the time was not far distant when the rest of India might be similarly immune. They had also earned quite a considerable revenue by supplying sera to other parts of India and so far as he was aware, the administration of them had not been marred by any incident.

Mr. Krishna Iyengar had induced a large number of worthy citizens to acquire merit by the erection of veterinary hospitals and dispensaries and had crowned his efforts in the year that they were celebrating by the opening of a splendid new hospital in this capital city.

Improvement of cattle

Proceeding, Sir Charles Todhunter said that there was also a great amount of work done directly for the ryot as was evidenced by the fact that the members of the staff in 1934-35 visited no less than 16,711 villages, and that nearly 60,000 castrations were performed by the village demonstration parties, whose purpose was to teach the ryot how to perform this operation for himself. He hoped that the time was not far distant when Mysore might follow Bombay in the introduction of a Cattle Improvement Act.

They had characterised their Department as Cinderella but he would suggest that they had just reached the point in the story where the good fairy in the person of the late President of the Royal Agricultural Commission had come upon the scene and had just waved the all-powerful wand of Viceregal counsel. The moment had come for the transformation to take place and for the neglected department of Animal Husbandry to take the position in the Simla ball-room that was due to her beauty, her virtue and her potential wealth.

They would say that the waving of the wand would need to be powerful indeed to raise her from the dust. In the words of the Agricultural Commission again, "It is scarcely possible to convey any indication of the magnitude of the task to those who know only Indian conditions or British stock-farming."

Sir Charles Todhunter then referred to the evils of indiscriminate breeding. Experiments had been made in one place after another in getting rich quick by crossing and re-crossing with imported bulls with results that any one with a knowledge of genetic could have foretold.

In the case of poultry he gathered that the Government had abandoned it altogether; the more credit to the Missionary enterprise that were continuing them.

Pure Milk

Referring to the control of adulteration, he said that it had attained success in other countries by the co-operation of the producers as well as the Government. He suggested that a co-operative dairy could undertake to supply large contracts for pure milk at a reasonable price to all institutions, hospitals and clubs. Once a substantial trade in pure milk was established, it would be time to begin the rigid enforcement of the laws against adulteration. He understood that the Mysore Municipality had in hand just such a scheme for encouraging the small milkman, as Mr. Krishna Iyengar had recommended.

Concluding, Sir Charles Todhunter deprecated the idea of starting a rival organisation of a society named Promotion of Kindness to Animals as they had already one in Mysore in which His Highness the Maharaja was a patron. But he suggested that they might work in co-ordination with the existing Society.

Major Marriott's Address

Major S. W. Marriott, in the course of his address, said that from a Veterinary point of view the problem in the army was different from that of others, "You civilians are very much more complicated and difficult to deal with." The fundamental difference between the Army and other civilian Veterinary Services was that the former took special care in reporting all the cases of contagious diseases to the authorities concerned immediately after those diseases were traced, while the latter never took the trouble at all in reporting the cases.

So far as the Army was concerned they had a better and a more efficient organisation; they had an All-India Organisation. He said that the two organisations should not work in water-tight compartments, but if they co-ordinated and co-operated, they could work effectively. The Veterinary Service was not at all a problem of a particular province or a particular State, but it was an all-India problem. As such, their vision and outlook must be broader and should not under any circumstances be confined to their own Province.

The idea of having a special Director of the Veterinary Department was stressed by Major Marriott instead of having the Director of Agriculture, who might not sympathise with their work. "I think the Federation is coming now and there should be a propaganda going on to get the Veterinary Departments in the Central Government." This would facilitate them to work much better.

Major Marriott then congratulated the Mysore Veterinary Department on the excellent work they had turned out. The work done by the Mysore Veterinary Service was second to none (cheers). Major Marriott then stressed the necessity of improving the livestock through the Veterinary Departments. In this connection they could as well utilise the services of young veterinarians and incidentally they could solve the unemployment among the veterinarians.

Sanitary Education

Major Marriott then dwelt on the deplorable sanitary conditions prevailing in India, especially in the stables and sheds. One of the important things the veterinarian should do was to improve the sanitary conditions. Sanitary education was an essential factor.

As an onlooker, proceeded Major Marriott, it did not appear there was much scope for them until they educated the ryot on the improvement of livestock. Perhaps, it would be correct to say that the value of the animals was far less when compared with the money they spent for treatment. (Laughter).

After referring to the defective inspection in the supply of milk, Major Marriott opined that the services of a veterinarian could very well be utilised in that work. If that was not done he could see no chance at all in that direction. It was needless for him to explain the necessity of providing qualified men for inspecting the milk supply instead of raw men. Major Marriott differed with the views expressed by Sir Charles Todhunter with regard to the starting of S.P.C.A. under the auspices of the Veterinary Department. Another organization would help to educate the people to be more kind to animals. He did not see any reason how it would clash with the existing one. As a matter of fact, he was also a member of the S. P. C. A. of the Civil and Military Station. He himself reported two cases to the police. But unfortunately they were not properly dealt with by the Police. Therefore, they should have their own men to look after that.

Concluding, Major Marriott advised the young men of their profession to have confidence in themselves.

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Travancore Scheme.

(FROM OUR CORRESPONDENT.)

Trivandrum, July 6.

In order to benefit the agriculturists of the State in carrying on their work more economically, the Director of Agriculture, Mr. K. Parameswaran Pillai, has drawn up a scheme for the improvement of livestock in the State. The scheme is not limited to any particular area but is meant to benefit the whole of the West Coast.

The estimated cost of the whole scheme is Rs. 3 lakhs, of which one half will be contributed by the State and it is proposed to request the Agricultural Research Board to contribute the other half. This scheme will be spread over a period of ten years. The experiment will be conducted in Travancore State, the cost of the experiment being met by the Travancore Government. This question will be considered at the forthcoming sittings of the Imperial Agricultural Research Board.

The scheme embodies regular increase in the livestock year by year. It has been found that the Scindhi variety is the most suitable for Travancore conditions and it is under contemplation to import a number of them gradually. Certain specified wards will be set apart for the experiments. The cattle in that area would be graded and cows carefully selected for breeding purposes. The inferior bulls will be castrated in order to enable the Scindhi bulls to procreate good progeny. The owners of the selected cows will be required to feed their cows well and costly veterinary arrangements will be made for both preventive and curative work with reference to cattle.

Though the beginning will be on a small scale more and more Scindhi bulls would be imported and the progeny will also be used for stud purposes. To start with a sum of Rs. 3,000 has been allotted for five Scindhi bulls to be kept in the Municipal Wards of Trivandrum and provision for this was made by the Standing Finance Committee of the Legislature at its recent meeting.

The Hindu 8-7-'36.

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SAVING DAIRY CATTLE

Reduction in Railway Freight

Simla, (By Mail).

A press note issued by the Bureau of Public Information, Simla, says :— a scheme which might result in reducing the slaughter of dairy cattle in Calcutta is to be introduced by the North-Western and East Indian Railways.

At present an appreciable proportion of Calcutta's milk supply is obtained from cows sent by train from the Punjab. After six months or so in Calcutta, the cows go dry and the question then arises whether they should be slaughtered or sent into the country to calve again.

It is uncertain whether a cow will calve a second or third time and, therefore be of further use for the supply of milk. In other words, money spent on railway charges to send cattle into the country may be wasted. As a result, a large number of these dairy cattle is slaughtered.

A specially reduced return fare to the Punjab for dairy cattle sent to Calcutta is now being introduced on the North Western and East Indian Railways. The present rate is four annas per mile in each direction for a waggon containing eight or ten cows. In future, cattle owners will be able to obtain return tickets for six annas per mile per waggon. The cost of sending a waggon load of dairy cattle from the Punjab to Calcutta is generally in the region of Rs. 250. By paying an extra Rs. 125, a total of Rs. 375, cattle owners will be able to have cows returned to their farms when they go dry.

In this way the slaughtering of dairy cattle may be reduced to a minimum and the practice will, it is hoped, die out.

The Hindu 23—7—'36.

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The Cattle Census Report of the United Provinces of Agra and Oudh for 1935 says that there are 5,726,249 cows and 4,060,877 buffaloes over three years of age used for milk production or breeding. The loss in cows has been more than compensated by the gain in buffaloes so far as milk supply is concerned because the latter yield more milk. There are now 121 cows and 86 she buffaloes for every 1,000 human beings in the Province, that is to say one milch animal for every five human beings. Of these roughly about half are dry. The proportion is thus reduced to one milch animal for every ten persons. A fair estimate of the average yield per cow would be two seers a day and that of the average per buffalo is three seers. Taking the two together the average yield per animal would approximately be two and a half seers and if half of the animals are taken to be dry, at a time each human being gets on an average about one quarter seer of milk every day, which is insufficient.

The Hindu 28—7—'36

CENTRAL POULTRY INSTITUTE

Scheme Approved

Simla, (By Mail).

The Government of India have approved of the scheme for the establishment of a Central Poultry Institute at Izatnagar under the administrative control of the Director of the Imperial Institute of Veterinary Research, and have sanctioned for it a non-recurring expenditure of nearly Rs. 2,75,000 for the construction of buildings and roads and for certain other capital expenditure, and an

average recurring expenditure of nearly Rs. 56,000 per annum from 1937-38 onwards, for the entertainment of staff, etc., (says a press note issued by the Director of Public Information, Simla.)

The Institute will carry on research on disease, nutrition and genetics of poultry and will act as a bureau for the dissemination of the results of research in this and other institutions. It will also carry on investigations on the processing and disposal of poultry and egg products, and make arrangements for courses of training, if there be any demand for them. Selective breeding work will, however, remain a Provincial subject. It is proposed to organise the work of the institute in two divisions, one dealing with scientific subjects and the other with industrial processes. On the scientific side, the Institute will devote itself to disease investigation and nutritional studies, advances in which are essential for any development of the poultry industry in India. On the industrial side, it is desired to investigate such matters as the grading of eggs for the Indian and foreign markets, the preservation of eggs by pickling, cold storage and other processes, the preparation of table-poultry, the best methods of packing and distribution of both eggs and poultry, and the possibility of introducing such articles as egg powder and egg pulp to the Indian market. To carry out the programme detailed above, in addition to poultry, a large number of unfertile eggs will be required daily for experiments. It will, therefore, be necessary to run a Poultry Farm on a fairly extensive scale working up eventually to about 1,000 birds.

The Hindu 29-7-'36.

MILK FOR SCHOOL CHILDREN

Success of Simla Scheme

(FROM OUR CORRESPONDENT.)

SIMLA, Aug. 12.

The report on the milk scheme sanctioned by the Simla Municipality for under-nourished school children of indigent parents, has been issued for publication :

Three boys' schools and three girls' schools were selected for the experiment and a detailed scheme was drawn up for its operation. The scheme was initiated on April 9 in the case of the girls' schools and on April 14 in the case of the boys' schools. Fourteen girls and twenty-eight boys were selected, a total of 42 children. At the same time a control group was weighed and measured, and special progress reports submitted monthly.

The School Medical Officers were directed to enter in a Special Register the names of all children found in the course of routine medical inspection to be below standard in height and weight for their age. Enquiries were made from the school authorities regarding the financial circumstances of the parents of the children selected. The children whose parents were believed to be indigent were recommended to the Medical Officer of Health for the free issue of milk. The parents of the others were informed of their children's condition and were advised to give them a pound of milk a day in addition to their ordinary diet.

The milk for each child selected for the issue was delivered to each school in two half pound bottles and with two straws. One bottle was to be consumed in the morning either on the child's arrival at school particularly if he or she had walked far (some come in from villages three or four miles away) or during the

morning recess. The other was taken before going home in the afternoon. It was made an essential condition that the bottle should be handed to each child unopened and that he should himself open it in front of a school master and drink its contents through a straw in his presence.

Records of the experiments show that while the girls on the milk issue increased in weight by an average of no less than 5'35 lbs. and in height by 0'78 inch, those in the "control" group only increased by 1'1 lb. and 0'18 inch respectively, in the same period. Similarly in the case of the boys, those on the milk issue increased in weight by an average of 3'92 lbs. and in height by 0'8 inch while those in the "control" group increased only by 1'6 lbs. and 0'6 inch.

These results have not only proved the value of milk as the most valuable addition to the dietary of the growing child in India but they have so far outstripped expectations and even the satisfactory figures obtained in similar experiments in England and Scotland that it would seem that milk is specially indicated for conditions obtaining in this country (says the report). The children have not only shown an improvement as demonstrated by the weighing machine and height measure, but even in this comparatively short period, they have noticeably improved in vitality and appearance. What is still more significant, they have escaped from the minor ailments which normally bring them to the School Dispensary. It is difficult to explain why the girls should have increased so much more than the boys in the same time. *The Hindu* 12-8-'36.

CATTLE BREEDING IN ORISSA

Governor's Scheme for Improvement.

(FROM OUR CORRESPONDENT)

CUTTACK, Sep. 2.

His Excellency the Governor has had under consideration the best method of improving the cattle of Orissa in furtherance of the campaign initiated by His Excellency the Viceroy.

The cattle of this province generally compare unfavourably both as draught and milch animals with those of any other province in India. The financial condition of the province is such that the Government are unable to afford any large sum on the purchase or maintenance of pedigree cattle. The Governor therefore proposes to form an Orissa Cattle Breeding Association, of which he will be the Patron, with the object of promoting the improvement of the condition of the cattle of Orissa by (1) collecting and administering funds, (2) purchasing, maintaining and selling pedigree stud bulls, and encouraging its members to maintain them, (3) maintaining a pedigree herd of cattle at Cuttack, and later on, if necessary, at other centres, (4) holding fairs and exhibitions and awarding prizes and sanads to those who have taken special interest in cattle breeding, and (5) giving educational assistance by means of pamphlets, leaflets and lectures, and in other ways, to its members and the public in general in cattle-breeding.

Any one who either presents a pedigree bull of the approved breed to the Association or pays the price of such a bull in cash and becomes responsible for its maintenance for five years or donates a sum of Rs. 1,500 or more to the Association will be enrolled as a Vice-Patron. Any one who donates a sum of Rs. 100 will be enrolled as a life member, and any person who pays an annual subscription

of at least Rs. 5 will be enrolled as an ordinary member. The Deputy Director of Agriculture, Agricultural Farm, Cuttack, will be Secretary of the Association.

It is proposed that the Association should arrange to station pedigree bulls at about 12 centres in the province where there are veterinary dispensaries, touring veterinary assistants, or agricultural farms. The Governor has already obtained promises from several prominent land-owners to provide sufficient funds for the purchase and maintenance for five years of pedigree bulls in some of these centres. He is himself presenting a bull to the Government Estate of Angul, and paying for its maintenance. The bulls will be available for the service of cows of local breeds in the neighbourhood, and no charge will be made for such service. The progeny will be branded and inoculated against rinderpest free of charge, and the Association will have the right to buy any approved bull-calf up to the age of two years at a fixed maximum price. *The Hindu* 5-9-'36.

Reviews.

How to treat common ailments of farm animals ;—Edited and published by the "Hoard's Dairyman"—the national dairy farm magazine, Fort Atkinson, Wisconsin, U.S.A. 124 pages. Price Rs. 1-6-0. Copies can be had in India through D. K. Parvate, Agent to "Hoard's Dairyman," 627-29, Sadashiv Peth, Poona City.

This handy little volume full of valuable informations and practical suggestions collected from years of field experience has been compiled with the object of guiding the stock owner in the diagnosis, treatment and prevention of many of the ailments of the animals of the farm. Written in plain English it affords easy, interesting and instructive study and strikes the reader at once with the amount of practical knowledge on a variety of disease conditions, both contagious and non-contagious that could be gathered from its 124 pages and that in a short time. It contains practically every thing on almost every effection of every farm animal from the horse down to the poultry and the dog, in short, it is treatment of farm animals in a nut shell.

A careful study and intelligent observance of the instructions contained in this booklet will, we are sure, enable many a farmer to manage successfully some of the ordinary affections that are met with in the domesticated animals, and with periodical professional advice and assistance he will always find it more easy and less costly to look after his stock.

The Editors—"Hoard's Dairyman"—should be congratulated for having brought out this valuable little book which ought to be of immense help to every one interested in the treatment of farm animals.

Indian Wild Life :—Editors : Major J. Corbett and Mr. Randolph C. Morris and Managing Editor Mr. Hasan Abid Jafry. Butler Palace, Lucknow. Annual subscription India Rs. 4/—Single copy As. 8/—Abroad 8s. 6d. or 2 £ Single copy 1s.

"Indian Wild Life" which has been started since July as the official organ of the All-India Conference for the Preservation of Wild Life and the Association for the Preservation of game in the U.P. will be found useful and interesting by all

classes of people especially Naturalists, Scientists, Foresters, Agriculturists and other classes of people. The first number is a very fine production containing, messages from highly distinguished people including our late Viceroy, the Commander-in-chief, Governors of United Provinces and Assam and some others. India is famous for its *fauna* and *flora* and a perusal of the journal will convince every body of the necessity of preserving the wild life in the economic interest of the country. The journal will surely educate the public opinion to realise its responsibility towards creatures which have played well their part in making the country fertile and inhabitable by doing positive service in the protection of crop, the growing of fruits and vegetables and the productions of beautiful flowers and plants. We wish the Journal a long and useful life and we earnestly hope that many will subscribe for the Journal and be benefitted.

Administration Report of the Mysore Serum Institute Bangalore for the year 1934-1935:—The Government Review on the Report says, "A noteworthy part of the work done during the year was the preparation of three new products on an experimental scale namely, Anti-Fowl-Cholera Serum, Anti-Anthrax Serum (Equine) and Anthrax Live Spore Vaccine and their issue for field use. Experiments and research were carried on to prepare some more new Biological products and to improve the technique of preparation of the products already in use." "The work of the Institute continued to be satisfactory during the year under Review." We quite agree,

The primary object with which this Institute was started was to supply the various biological products required for use by the State C. V. D., in combating several animal diseases and now we are glad to find that this object is being very admirably fulfilled and in addition the Institute has been able to produce and supply these products to the Governments of Hyderabad, Baroda, Coorg, Cochin, Pudukota, etc., and the Revenue derived from these supplies to outside the State was Rs. 42,600 as against Rs. 48,200 derived from the total sale of products to the State C. V. D., during the year. The working expenses of the Institute amounted to Rs. 70,600 and thus there was a net revenue of Rs. 22,300. The Institute has been steadily extending both its productive and marketing activities. It has helped the State C. V. D., in its campaign against Rinderpest, supplying it promptly with a good quantity of potent serum and virus (bull and goat), for S. A. and S. S. inoculation and goat adapted Virus Vaccination. The result has been marvellous. The incidence of Rinderpest was the lowest on record. This low incidence and the adoption of the Goat adapted Virus Vaccination in the place of the S. S. inoculation have considerably reduced the demand for the R. P. serum and its production. Coorg which adopted the Goat Virus Vaccination for the first time was also supplied with the Goat Virus. Of the two strains of Goat adapted R. P. Virus (fixed) namely Muktesar and Local, maintained in the Institute by passage through goats, Muktesar one was subjected to 87 passages while the local was subjected to 88 passages during the year and they underwent the 233rd and 192nd passage respectively in all by the end of the year.

One discontinued Rinderpest serum maker was immunised and made use of for preparing Anti-Fowl-Cholera serum on an experimental scale for the first time during the year. The serum was issued for trying in the field. The newly prepared Anti-anthrax serum (Equine) was not issued for use for want of demand. Experiment to test the infectivity of Rinderpest Virus administered per Orum has shown that infection by injection does not occur. Experiment of active immunisation of ewes against Rinderpest during pregnancy has indicated that no congenital immunity has been conferred on the young ones.

The newly prepared Anthrax Spore vaccine was still under test during the year. B. Q. Bacterin introduced in the previous year in the field, was found superior to B. Q. Filtrate in its antigenic properties and it was therefore produced and supplied in large quantities during the year. The Report rightly advocated the Sero Bacterin inoculation against B. Q., in all the outbreaks. The Report says that one brew of Anti-Fowl-Cholera serum was prepared by immunising a buffalo with cultures of *P. avisepticus*.

The institute examined 2,874 smears during the year for various diseases, and conducted postmortem examinations on 693 animals and birds which died in the Institute as a result of experiment or otherwise: The routine examination of blood of R. P. Virus producers revealed 33% of the cases to be positive for *Theileria mutans*. One case of N. equi was recorded out of blood smears out of 8 horses sent from Mysore lancers. Collection of parasites was continued, Taenia, Taenioformis (T. Cressicalis), encountered in a wild cat was added, to the collection during the year. Work on John's disease is being carried on in the Institute by the Assistant Superintendent of the Mysore C. V. D., scientific section. The Institute exhibited all its Biological products in the various exhibitions in the State along with a number of instructive photographs of the Institute. They were all very much appreciated. The Biological products were awarded three gold medals and certificates of merit. The Superintendent of the Institute attended the Eighth All-India Veterinary Conference arranged for the Exhibition of all the Biological products of the Institute and delivered a lecture on 'a short description of the Mysore serum Institute', projecting photographs of the various views of the Institute by means of an Aepideascope. Eight professional papers were contributed by the staff of the Institute during the year, i.e., six for the journals, one for the Eighth All India Veterinary Conference and the other for the Seventh Annual Conference of the Mysore Veterinary Medical Association. We congratulate the Superintendent and the staff on the good work that the Institution is turning out annually.

The Annual Administration Report of the Mysore Civil Veterinary Department for the year 1934-35.

Reinderpest, the worst scourge of cattle in this country was responsible for only 25 outbreaks and 410 deaths, the lowest ever recorded. 6,395 inoculations against this disease were done with Goat adapted Virus. S. S. and S.A., inoculations were done only in a few villages. Anthrax, foot and mouth disease, Surra and parasitic diarrhoea claimed larger number of deaths than in the previous year. Total number of inoculations done during the year was 136,235 against 144,891 in the previous year. The Report and the Government Review thereon mention about the unsatisfactory way of reporting of outbreaks. Only 33 per cent of them were reported direct to the Veterinary Inspectors and the remaining 67 per cent were detected by the staff while on tour. The incidence of R. P. gave greater time to the staff to do more systematic touring and attend to the report of other contagious diseases. The Government reiterates the need for Deputy Commissioners for districts enforcing the punctual submission of reports of outbreaks of diseases and cattle mortality returns. There seem to be a common practice in some of the villages where the diseases prevail, of killing the affected sheep and selling the hides to butchers resulting in the spread of the disease in the country. The Government has requested the Deputy Commissioners to issue in consultation with the Director of Agriculture necessary instruction to village officers to put a stop to this evil practice. Parasitic diseases have become a serious problem for stock owner in the State as elsewhere in this country. Considerable propaganda was done and periodical dosing of animals for worm parasites was

undertaken by the staff in many places. The Department rightly recognises the problem of this parasitic disease as a difficult one and says that no tangible results could be achieved until a special staff is detailed for the purpose. This applies not only to Mysore but equally well for the whole of India. The havoc played by the parasitic diseases has not yet been properly estimated by the authorities in this country. The state should be well apprised of the extent of damage done by these diseases, and well settled plan should be placed for sanction and systematic adoption.

The number of Veterinary Hospitals and Dispensaries rose from 63 to 64. Four more Institutions were sanctioned to be opened during the current year. The Assistant Superintendents in charge of divisions attend the Veterinary Hospitals during working hours and by their advice and co-operation a more efficient service is ensured to the stock owners enhancing the usefulness of the Institutions. They have been supplied with microscopes. It is noteworthy that a co-operative society has contributed the cost of extra medicines for the treatment of cattle during an outbreak of R.P., at Sagar. We wish all the Co-operative societies to come forward in this manner, throughout the country. The Veterinary Institutions at Bangalore and Mysore which suffered for nearly three decades for want of habitation of their own, have after all secured suitable buildings of their own and they were shifted to the new premises during the year. The Report mentions the names of many donors who have contributed during the year towards the various buildings for the Veterinary Institutions in many parts of the State. How we wish for such things in other parts of this vast country? The Report says that inspite of these donations many of the Veterinary Institutions still continue to be located in unsuitable buildings with no accommodations for inpatients from villages, requiring prolonged treatment. What is worse is that several of the buildings have not been getting even the Annual coat of white washing and minor repairs. We strongly endorse the Statement in the Report that such state of affairs marks the usefulness of these Institutions to a very great extent and is therefore necessary that the Government should provide sufficient funds for the construction of at least a few type design buildings for Veterinary Institutions in the State every year on an annual programme of development. The State which has been able to find funds for several schemes should be able to find funds similarly for this scheme which is of great importance in the Rural Development of the country. 2,37,125 cases were admitted into these Veterinary Institutions for treatment. 20,520 castrations were performed and 15,481 surgical operations were conducted during the year as against 2,25,703 fresh cases admitted, 18,310 castrations performed and 15,259 surgical operations done during the previous year. The staff visited 16,711 villages, castrated 58,383 animals, treated 75,362 cases and performed 1,638 surgical operations during their tours in the year as against 15,468 villages visited, 52,857 castrations done, 73,225 cases treated and 1,434 surgical operations undertaken, during the previous year. With the aid of a District Board, Poultry farming which was started previously has been progressing satisfactorily and the Department has distributed over 1,000 eggs freely among the Agricultural classes. This is a step in the right direction, and we commend it to the other District Boards. The Departmental staff attended all the 103 fairs held in the State and no contagious disease broke out in any one of them. The demand of the Village Panchayats for more extensive distribution of Amruth-mahal bulls at rates within the means of many of the Villages is quite reasonable and until this is done it is no good of attempting to castrate all the male stock in the villages. The usual biennial inspection of jutka ponies was carried out

by the Veterinary Inspectors and reports were submitted. The Department undertook propaganda and issued an appeal to all the Municipalities in the State pointing out the importance of a systematic anti and postmortem examination on all animals slaughtered for human consumption. 22 Municipalities have so far responded, replies from others are awaited. We join the Superintendent in his great regret that the premier Municipalities of Mysore and Bangalore cities have still been continuing to keep on unqualified men for the purpose. It should be possible to the State to compell, these municipalities and amend the rules suitably for this purpose.

The Scientific section in addition to routine work has been carrying on systematic work on John's disease financed by the Imperial Council of Agricultural Research. The Assistant Superintendent in charge of the Scientific section attended the Eighth All-India Veterinary Conference, on deputation. He examined 531 specimens for the Department in the year against 503 in the previous year, for the various diseases.

The Seventh Annual Conference of the Mysore Medical Association was held in May 1935 in Bangalore under the Chairmanship of Raja Sabha Bhushana Diwan Bahadur Sir K. P. Puttanna Chetty, Kt., C.I.E., and Major R. W. Simpson, M.C., Retired Superintendent, Civil Veterinary Department delivered the inaugural address, The Conference sat for three days and discussed useful subjects of professional interest. The Report shows a substantial progress of work in all directions.

ERRATA.

Vol. XIII, No. 1.

Page.	Paragraph.	Line.	Read	For
2	1	2	this	his
2	3	9	superseded	superceeded.
65	2	2	his	His
65	2	10	..	.. Omit the word themselves.
66	1	12	barest	bearest
69	3	6	studies	knowledge
70	2	4	India	Indian
70	2	5	..	.. Omit the word institutions
70	3	4	..	.. Add the word 'and' after Bengal.
75	1	1	Associations	Association
102	2	6	us	as
103	2	1	1590	15090
..	2	1	1720	17020
106	3	7	bred	bread

Obituary.

SIR ARNOLD THEILER, K.C.M.G.,
DR. MED. VET., D.V.SC., D.SC., PH.D.,
HON. ASSOCIATE, R.C.V.S.

It is the privilege of very few Scientists "to lay the flattering unction "to the soul" that their labours have borne fruit within their life-time. One such was Sir Arnold Theiler, whose passing away from our midst is a loss which will be keenly felt all over the world. It is idle on our part to attempt to sketch the great career of Sir Arnold. It has been done very ably in the pages of our several English contemporaries. We merely record here our humble homage to the memory of that great Scientist of all times.

DR. N. NITTA,

*Head Director of the Japanese Society of Veterinary
Science and Editor Journal of the Japanese
Society of Veterinary Science.*

We regret to learn the sudden demise of Dr. Nitta, on January 23rd, 1936. It is not only a loss to Japan but to the whole of the world. We cannot do better, than extract below, a short sketch of his career, from our Japanese contemporary, the Journal of the Japanese Society of Veterinary Science, March, 1936.

"It is with profound regret that we announce the death, on January the twenty-third, of Dr. Nitta, Honourary Professor of the Tokyo Imperial University, and Head Director of the Japanese Society of Veterinary Science. Dr. Nitta was stricken with apoplexy at one o'clock on the afternoon of January the twenty-third and passed away within an hour at the age of sixty-three. His death is a great loss to the profession of Veterinary Surgery in Japan and the world.

Born in the village of Kannami, Takata District, Shizuoka Prefecture, in 1874, Dr. Nitta was graduated from the Tokyo Imperial University in 1896, where he took the Veterinary Course, at the College of Agriculture. He then entered the post-graduate department of the Imperial University, where he specialised in Bacteriology and the contagious diseases of domestic animals.

In 1900, he was appointed Assistant Professor of the Agricultural College of the Tokyo Imperial University, and in 1902 he received the degree of Doctor of Veterinary Surgery. He was sent abroad in 1913, to study Bacteriology and the diseases of domestic animals and spent three years in Germany,

Austria and France, after which in 1916 he was made Professor of the Imperial University, where he served with untiring enthusiasm until he reached the age limit in 1934. Upon his retiring from service, he was appointed Honourary Professor by Imperial Order.

From 1897, Dr. Nitta was engaged by the Ministry of Agriculture, Commerce and Forestry, to conduct various kinds of research in contagious diseases of domestic animals, including work on the isolation of germs, the preparation of vaccines, and the diagnosis of these diseases. In all of these activities, he achieved signal success.

In 1918 he was appointed the Director of the Veterinary Laboratory, Ministry of Agriculture, Commerce and Forestry, Nishigahara, Tokyo, and during the next six years, rendered invaluable service, along many other lines, in connection with contagious diseases of domestic animals.

It had long been Dr. Nitta's idea to co-ordinate the activities of the profession of Veterinarians, throughout Japan, and in 1921 this purpose was realised in the establishment of the Japanese Society of Veterinary Science, of which he became the Head Director. He served this Association with untiring devotion until the time of his death, giving much of his time to the journal which is published, and making every effort to introduce the work of Japanese Veterinarians to foreign countries. In recognition of these efforts, he was made an honorary member as follows:—

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Association;

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Académie Vétérinaire de France;

Honorary Associate of The Royal College of Veterinary
Surgeons, (London).

As a member of the standing committee of the International Veterinary Congress, he contributed materially to co-operation among Veterinarian of all countries.

Thus as teacher, research worker, as leader among those interested in the advancement of his profession, both at home and abroad, Dr. Nitta attained a position of remarkable distinction, and his death has taken from Japan, and, we may say, the world, one of the most valuable and distinguished members of the profession. As his friends and fellow-workers, we are profoundly grieved by his loss."

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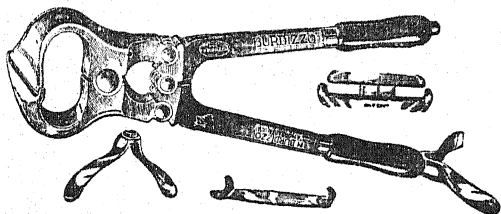
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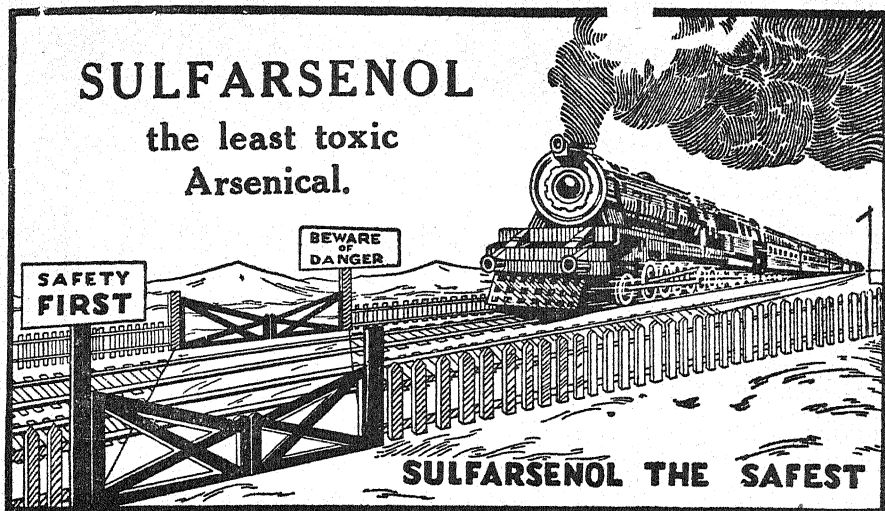
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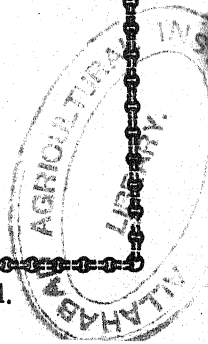
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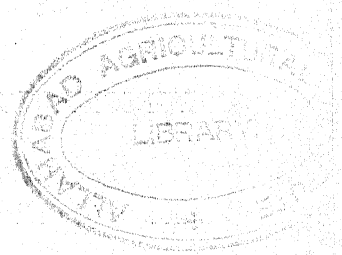
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The Indian Veterinary Journal.

(The Journal of The All-India Veterinary Association.)



Editor :

P. SRINIVASA RAO, G.M.V.C.,

Veterinary Surgeon, Madras.

Office : 26, WALLAJAH ROAD, MOUNT ROAD, MADRAS, (S. INDIA.)

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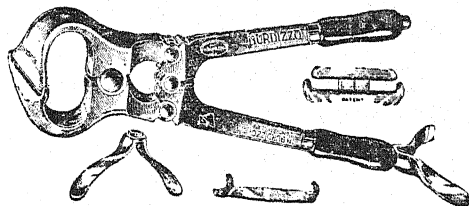
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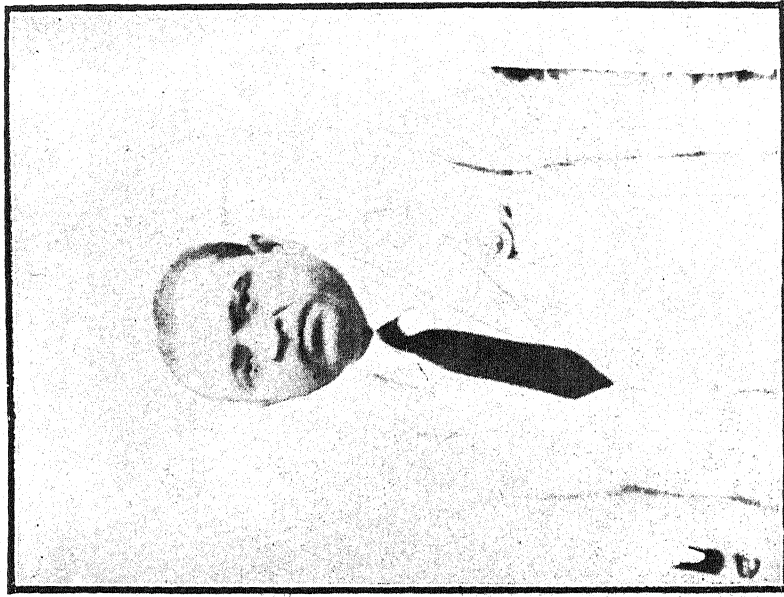
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SPECIAL NUMBER OF

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[No. 3

Editorials.

THE BOMBAY JUBILEE CONFERENCE.

"Un-qualified success" is the unanimous verdict of the great gathering that met at Bombay recently to celebrate both the Golden Jubilee of the Bombay Veterinary College and the Ninth All-India Veterinary Conference. The Governor of the Presidency opened the Jubilee Celebrations and Mr. F. Ware, Director, Imperial Veterinary Research Institute, Muktesar, presided over the conference.

His Excellency's speech was remarkably refreshing and business-like without the usual platitudes generally indulged in at such functions. He said "The Veterinary Department is one that has suffered considerably owing to the lack of funds which the financial difficulties of the last few years have brought about and no part of it has suffered more than the college. In consequence the College no longer occupies the leading position in India which it once did." His Excellency exhorts the profession not to be discouraged over this but comes out with a word of cheer when he refers to the personal interest shown by His Excellency the Viceroy in Animal Husbandry and says "This should in course of time, lead to the voting

of larger funds for the purpose." Let us hope that the Bombay Civil Veterinary Department is in for good luck in the near future.

Khan Saheb N. D. Dhakmarvala, Chairman of the Reception Committee in the course of a thoughtful address touches on very many vital questions. He pleads for improvement both in quality and quantity of the Milk Supply in the country. He says "While it is to the credit of most big cities that their water supply is pure, it is a thousand pities that their milk supply is not." Who can deny when he says "Slaughtering of Milch Cattle indiscriminately will bring about one day the extinction of our best animals and some of our Agricultural and National Wealth." One other question which the Khan Saheb has been rightly insisting upon from time to time, is the problem of Horse-breeding in India. We wonder how many have bestowed sufficient thought over this question. With an insight born of long experience and close study, he says "Racing supplied the most profitable market for horses all over the world. It is a permanent institution and India should not allow this valuable market to be captured by foreign horses. The country gave away nearly 12 lakhs of rupees in the shape of stakes to foreign horses and only $2\frac{1}{2}$ lakhs to Indian horses. How can the industry develop under these conditions." We wish a wider attention is drawn to this question.

Mr. F. Ware, the President of the conference visualising "The future of the Veterinary Profession in India" insists upon the entire profession thoroughly equipping itself with the "three Sciences of Animal Medicine, Animal Nutrition and Animal Genetics." He has pleaded for specialisation in particular subjects and unless this is done, Veterinary Science cannot make much headway in this country. Mr. Ware does not mince matters when he says "Recent surveys have shown the enormous amount of wealth that is locked up in the live-stock of this country and men are wanted to take care of all these animals from the time of conception to the disposal of their carcasses and to develop the many industries connected with them, and who are more suitable for this than Members of the Veterinary Profession." We only hope the value of such a responsible statement coming as it does from so distinguished an

Officer reputed for his sobriety of judgment and efficiency, will not be lost on the Government.

Mr. Ware closes his address with a piece of advice, which we commend to the profession. "Young men, know your job. Virtue is its own reward..... Be thorough and strive for efficiency."

Mr. E. S. Farbrother, the Director of Veterinary Services, Bombay, detailed the activities of the Department in various spheres and touching upon the lack of funds he strikes a pathetic vein when he says "They (the officers of the College) have done, and are doing what is possible under the circumstances but they cannot build well without sufficient bricks and mortar". Referring to the various private donors he pays a graceful tribute and says "The fact that such generous assistance has been given is, I think, evidence of the fact that the work of the Department is appreciated by the public who are willing to assist as far as they are able in furthering its aims".

The only resolution passed is with regard to higher Veterinary Education in this country. Of this we shall write in detail in our next issue. The Chairman of the Reception Committee himself moved the resolution and Mr. K. S. Nair G. B. V. C., M. R. C. V. S., Lecturer in Surgery, Madras Veterinary College, made a striking speech in seconding the resolution. Mr. Nair has known in detail the kind of Veterinary Education imparted in Bombay, in England and now in Madras. Hence his criticism has a unique importance and deserves to be carefully considered by the authorities.

Another feature of this session is the award of Gold Medals by the Jubilee Committee to three of their alumni of the Bombay Veterinary College, who have distinguished themselves in different fields of work. They are Khan Saheb N. D. Dhakmarvala, Principal Phadke and Mr. M. S. Sastry, the General Secretary of the All-India Veterinary Association. A more deserving trio it is hard to conceive. We congratulate them on the award. Bombay has acquitted herself well in conducting a momentous session of the All-India Veterinary Conference. We feel certain we voice the feeling of the profession when we express our gratitude to her.

Dr. NORMAN C. WRIGHT.

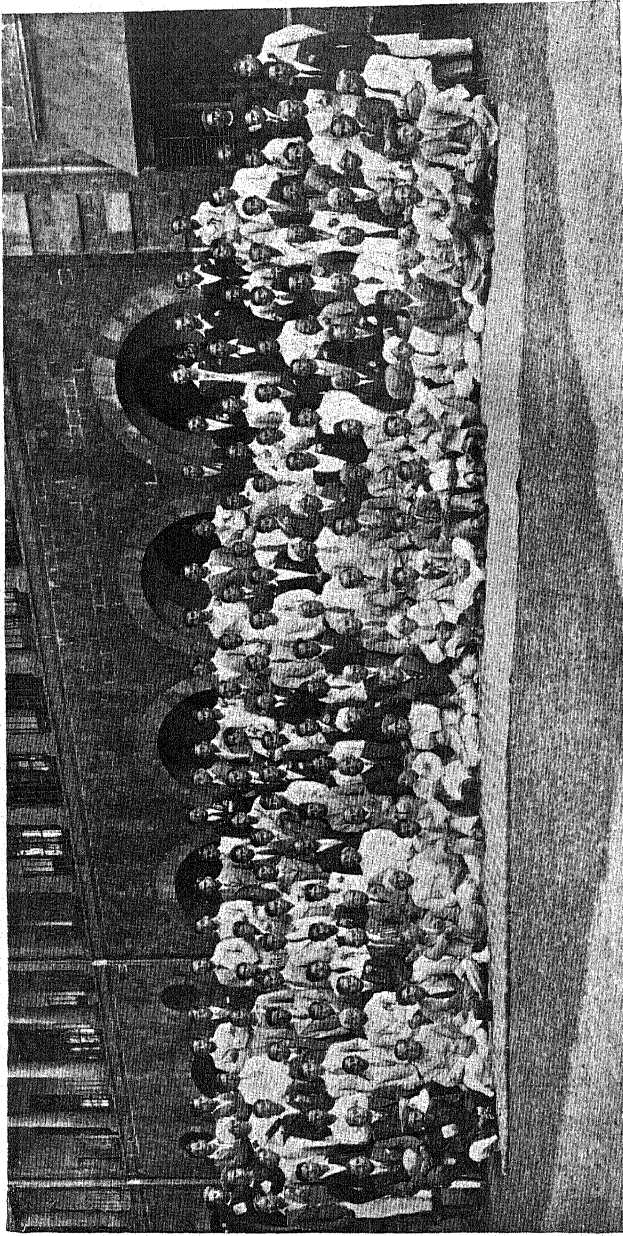
Director of the Hannah Dairy Research Institute.

Dr. Wright was educated at Christ Church, Oxford, and at Gonville and Caius College, Cambridge. He graduated at Oxford in 1921, with Honours in Chemistry and Physiology. In 1922, he was awarded an Agricultural Research Scholarship, and studied for two years at the School of Agriculture, Cambridge, under the late Professor T. B. Wood. He received the degree of Ph. D. at the University of Cambridge in respect of work carried out on the calcium metabolism of dairy cows. In 1924, Dr. Wright joined the staff of the National Institute for Research in Dairying at Reading. In 1926, he was awarded a Commonwealth Fund Fellowship, and worked for two years in the United States, first in the Department of Dairy Industry at Cornell University, and latterly in the Bureau of Dairying of the United States Department of Agriculture. He returned to Great Britain in the summer of 1928, and was appointed the first member of the staff of the Hannah Dairy Research Institute in September of that year. Since that date Dr. Wright has been largely responsible for the general development of the work of the Institute, and in 1930, was appointed Director.

Dr. Wright's research work has covered a wide field. He has made important contributions to recent knowledge of animal nutrition, particularly with reference to the protein requirements of dairy cows, the conservation of young grass by ensiling and by artificial drying, and the influence of 'bulk' in the rations of live-stock. He was jointly responsible for demonstrating the reduction which occurs in the lime content of the blood in cases of milk fever, an observation which forms the basis of the modern calcium treatment of this disease. He has initiated important investigations into problems connected with bovine tuberculosis, particularly in relation to the safety of the milk supply, and has published informative reports on various aspects of pasteurisation. He has also been responsible for the general direction of investigations into bovine contagious abortion and bovine mastitis. On the academic side his interests lie mainly in the study of protein chemistry, and he has been able to apply his results in this field to a number of



DR. NORMAN C. WRIGHT,
Director of the Hannah Dairy Research Institute,
Foreign (British) Expert Adviser in Dairying in India.



Group Photo of the Golden Jubilee Celebration of the Bombay
Veterinary College 1936, with Past and Present Students.

technical problems involved in the manufacture of condensed and dried milk products.

Apart from his work at the Hannah Institute, Dr. Wright has many outside interests. He is an Honorary Lecturer of Glasgow University, is joint editor of the Journal of Dairy Research, and is a member of numerous scientific societies. He is a member of the British Dairy Farmers Association, a Director of the Ayrshire Agricultural Association, and a Governor of the Glasgow Veterinary College.

Taking all these things into consideration, the Government of India invited him on behalf of the Imperial Council of Agricultural Research, India, to survey the state of Dairying here in India and give his expert opinion, We hope India will be benefitted very much by his expert opinion, (*Ed. I. V. J.*)

**PROF. A. C. AGGARWALA, B. Sc., Hons., M. R. C. V. S.,
Capt., A. I. R. C.**

Professor of Animal Husbandry, Punjab Veterinary College, Lahore.

Prof. A. C. Aggarwala has been selected to act as Secretary Adviser to Dr. N. C. Wright, the Foreign (British) Expert Adviser in Dairying in India under the Imperial Council of Agricultural Research. His many friends, who know his tireless energy and capacity for work and who have watched his brilliant career from student days, will unanimously agree that the Government of India has made the most appropriate selection.

With a uniformly successful school and college career, winning open competitive scholarships, first positions and several other distinctions, Mr. Aggarwala won the Punjab University Scholarship for standing first in the Province in Honours (Zoology) B. Sc., examination. While a student of M. Sc., University class in Zoology at the Government College, Lahore, where he worked as a student Demonstrator in Zoology for F. Sc., & B. Sc., classes also, he was deputed by the Punjab University to carry out Research at the Indian Museum, Calcutta, and later was selected as a Government of India State

Veterinary Scholar to obtain a Veterinary Diploma (M. R. C. V. S.) in the United Kingdom and thereby to render himself eligible for appointment to the I. C. V. S. (afterwards I. V. S.).

Entering as a student of the Royal Veterinary College, London, in October, 1921, and graduating in July, 1924, he won certificates of merit in each and every subject of his examination and obtained a silver medal in Veterinary Hygiene, Dietetics and Animal Husbandry for standing First in his class in the above subjects. He obtained valuable experience through practice with some eminent Veterinary Surgeons in England, Germany and France.

On his return to India he was appointed as Professor of Hygiene and Dietetics and Animal Husbandry and Milk and Meat Inspection at the Punjab Veterinary College, Lahore, and was later appointed to the King's Commission in the A. I. R. O. The credit for the immense good done by the Punjab Veterinary Students' Debating Association goes to Prof. Aggarwala, who not only started it but also made it a success. The instruction of Meat and Milk inspection to the Provincial Sanitary Inspectors' class has also been entrusted to him.

The appointment which he holds at the Lahore College gave him unrivalled opportunity for exploiting the numerous researches in which his activities had been engaged and for which the agricultural masses and the Public Health bodies in India owe a great deal to him.

His writings, which are not less than forty, include many articles on Animal Husbandry, public health and Veterinary education published in British and Indian Veterinary periodicals, Govt. publications and numerous English and vernacular Indian papers, and books on feeding and milking of cows, Laboratory Manual of Milk Inspection, Milk supply of Lahore and Cattle Keeping in India.

Ever since the formation of the Punjab Council of Research the Punjab Government nominated Prof. Aggarwala as its member. He represented the Punjab Veterinary Department in the Slaughter houses Committee of Lahore, and also served in 1930, on

the Board of Inquiry, Punjab, for supervising the Inquiry into the milk supply of Lahore. The Punjab Government nominated him as one of the four delegates from the Punjab for the Animal Husbandry Wing Meetings, and in February, 1933, he also worked as a Joint-Secretary of the Board. He has worked on various sub-committees of the Imperial Council of Agricultural Research to consider legislation pertaining to meat and milk inspection and to draft out a memorandum on meat-inspection and on All-India Dairy Bill.

His recent tour to the Far East, including Japan, has given him additional experience of Animal Husbandry and Public health work in these countries.

As a successful lecturer he is popular with his students, and in all Animal Husbandry Assemblies his opinions are listened to with attention.

He is one of the ablest men the Veterinary profession has ever produced in India, and the profession knows it well that his sterling work in public and livestock improvement in India through the Imperial Council of Agricultural Research will continue to bear good fruit.

The Ninth All-India Veterinary Conference.

Bombay, 1936.

PROCEEDINGS.

(FIRST DAY)

28th December 1936, (Monday), 3-P. M.

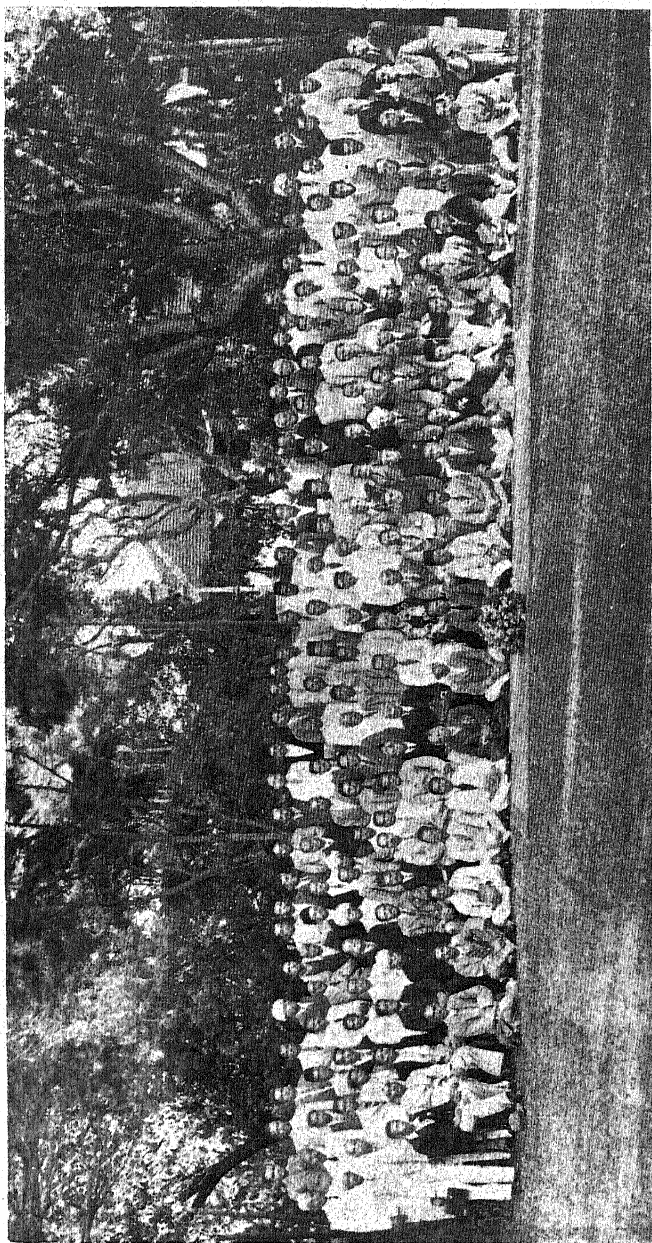
The Ninth All-India Veterinary Conference began its Sessions punctually at 3-P. m., in the tastefully decorated spacious hall of the Bombay Veterinary College, Parel, Bombay. The Chairman of the Reception Committee, Khan Saheb N. D. Dhakmarvala, G. B. V. C., B. V. S., retired Professor of Bombay Veterinary College received the President-elect, Delegates and visitors and

conducted them to their seats. He then delivered his address welcoming the Delegates and others to the Conference. (Appendix-A).

Mr. R. N. Naick, G. B. V. C., Veterinary Investigation Officer, Bombay Presidency, proposing Mr. F. Ware, F. R. C. V. S., I. V. S., Director, Imperial Veterinary Research Institute, Muktesar, India, to the Chair, said:—

Ladies & Gentlemen,

I propose Mr. F. Ware, F. R. C. V. S., I. V. S., F. N. I., to be President of this Conference. In this connection, I would like to say a few words drawing your attention to what he has been able to do practically in the advancement of Veterinary research and Veterinary activities in India. He commenced his work in this Presidency as Assistant Principal of this College in 1907, as stated by Khan Saheb Dhakmarvala. After a short period of service he went to Central Provinces and thence to Madras Presidency as the head of the Veterinary Department in 1911. In that Capacity he made a careful study of the whole province and of the Veterinary needs urgently required for the welfare of cattle, the mainstay of agriculture, and found that his staff comprising of one Deputy Superintendent and 35 Veterinary Assistant Surgeons was too inadequate to cope with the work and to render substantial service to animal husbandmen. He, therefore, divided the Presidency into different circles and put each of them in charge of a Deputy Superintendent and created a number of posts of stationary and itinerating Veterinary Assistant Surgeons and directed the work on such a well thoughtout plan that Government and public came forward with showers of praise for his unique service to the country. To-day the Civil Veterinary Department, Madras possesses a very efficient professional staff of 12 Deputy Superintendents and about 300 Veterinary Assistant Surgeons. Similarly in the Veterinary College, Madras, he organised fully manned different branches having teaching and research work and introduced post graduate course to maintain the professional efficiency of his subordinates to the highest pitch possible. The money spent on teaching and research is a great investment for the advancement of the Veterinary activities and as such the Government



Group Photo of the Ninth All-India Veterinary Conference, Bombay, 1936,

With MR. F. WARE, F. R. C. V. S., I. V. S., F. N. I.,
Director, The Imperial Veterinary Research Institute,
Muktesar, President in the centre.

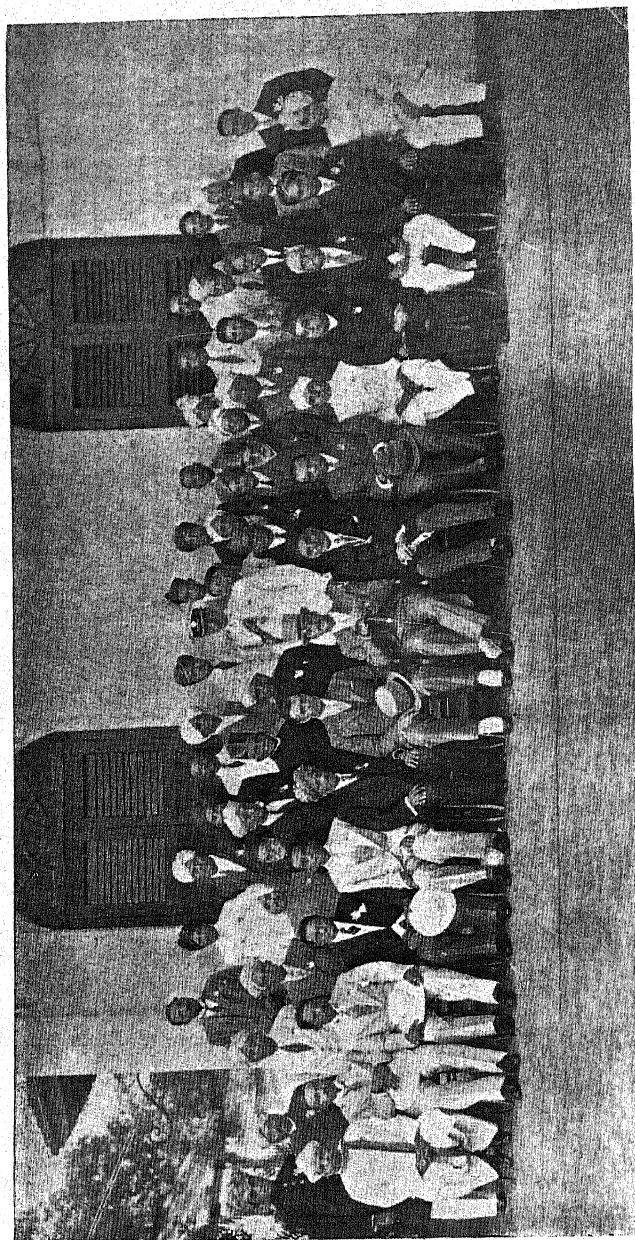


Photo of the Reception Committee of the
Bombay Veterinary College Golden Jubilee Celebration 1936,
With HIS EXCELLENCY LORD BRABOURNE, The Governor of Bombay, in the centre.

of Madras readily accepted his proposals and were pleased to increase the expenditure from Rs. 40,132 as stood in 1912-13, to Rs. 1,32,688 in 1931. What a substantial and sustained progress! "From nothing practically Mr. Ware had worked the Department to one of the most efficient departments in the Presidency and that the Civil Veterinary Department, Madras, of to-day was mainly his creation" are the words of unique tribute expressed recently by his successor Mr. Saunders, the Director of Veterinary Services, Madras Presidency.

In the year 1929, when I was working at the Imperial Veterinary Research Institute as Assistant Veterinary Research Officer a crisis had occurred there due to the retirement of Dr. Edwards and a strong man of proven capacity was required to guide and govern, to organise and develop Veterinary research and Veterinary activities at this Institute in particular and in India in general. The choice of the Government of India rightly and fortunately fell upon our august President. No sooner he took charge of his high office than he seriously put his shoulders to work sacrificing his personal comforts and pleasures and organised various sections capable of further development and extension with a view to institute extensive researches in every branch of the Veterinary Science which were so long held back due to step-motherly treatment when granting funds. With his gifted, persistent, determined, patient and practical nature, constructive faculty and formidable executive abilities, he succeeded in effecting improvement in the Institute and in securing sufficient funds for the healthy growth of the Veterinary Science. To-day, as a result, the Muktesar Institute stands as a premier Institute in the world having fully equipped sections to carry out research in Serology, Biochemistry, Pathology, Bacteriology, Protozoology and Entomology. Similarly at Izatnagar, the serum Institute has been organised on a sound basis and Animal Nutrition Institute and Poultry Research Institute have been recently added. Besides, new posts of specialist officers to deal with tuberculosis, Johnne's disease and contagious bovine abortion have been created. In addition to these, proposals for establishing at Izatnagar Animal Genetics Institute and All-India Veterinary College for imparting the highest standard of Veterinary Education in India have been made and are also likely to be accepted. This is a tremendous

organisation accomplished within a period of about eight years solely for the betterment of the Indian cultivators to whom the assistance rendered by the Veterinary Departments is, in reality, of greater practical value than that rendered by certain other nation-building departments.

In addition to these activities he has, being an ardent student of Science, found time to contribute substantially towards the advancement of the Veterinary Science. His contributions to Parasitology and Protozoology are two well known and need no mention here.

I, therefore, feel along with my colleagues assembled here, very proud to-day that convenors of this conference have secured such a big personage to be the President of the Conference and to guide the future destiny of our profession, which, due to his activities, appears now to be very bright indeed.

The proposal was duly seconded by Mr. Ram Swarup, G. P. V. C., Veterinary Inspector, Sahranpur, U. P., and supported by Mr. N. D. Dasan, G. B. V. C., Deputy Superintendent, H. E. H. The Nizam's Civil Veterinary Department, Aurangabad. This was carried unanimously with great acclamation.

Mr. Ware was duly garlanded and installed in the Presidential Chair. He then delivered his Presidential address. (Appendix-B).

Mr. K. R. S. Aiyar, G. B. V. C., Lecturer, Bombay Veterinary College and Joint Secretary of the Golden Jubilee Celebration Committee of the Bombay Veterinary College then read out the names of the following persons who telegraphed or wrote regretting their inability to attend the Sessions and wishing the conference all success.

Mr. B. K. Badami, G. B. V. C.,

Director, H. E. H. The Nizam's Government Civil
Veterinary Department, Hyderabad.

„ P. Srinivasa Rao, G. M. V. C.,

Editor, The Indian Veterinary Journal, Madras.

„ T. Vinayaka Mudaliar, G. M. V. C.,

District Veterinary Officer, on leave—Bangalore.

- Mr. C. H. Mushtaq Ahmed Choudhury, G. P. V. C.,
Hospital Surgeon & Radiologist,
Punjab Veterinary College, Lahore.
- „ Rai Sahib P. N. Das, G. B. V. C.,
Assistant Director (Retd), B. & O., Kushtia.
- „ M. R. V. Panikar, M. R. C. V. S.,
Madras Veterinary College.
- „ Major L. M. Thosar, G. B. V. C., P. G. (Lond. & Edin.),
Civil Veterinary Officer, Gwalior.
- „ The Secretary,
Veterinary Graduates Association, Assam.
- „ J. M. Bhatt,
Retired Veterinary Inspector, C. P., Bhavanagar.
- „ Chohan, Bhavanagar State.
- „ A. Ramalinga Mudaliar, G. M. V. C.,
Retired Veterinary surgeon, Idaikal, Madras.
- „ T. S. Davis, Supdt., C. V. D., Agra.
- „ J. D. Chatterjee, Jaora State.
- „ R. R. Joshy, G. B. V. C.,
Retired Dy. Superintendent and Proprietor,
The Hyderabad Livestock & Dairy Co.,
Hyderabad.
- „ Rao Saheb K. Kylasamier, G. B. V. C.,
Superintendent, Madras Serum Institute.
- „ A. W. Hameed, G. P. V. C., Editor, U. P. Vety. Journal.
- „ G. N. Roy Chaudhuri, Calcutta.
- „ Udey Singh Siddhu,
General Secretary, U. P. Veterinary Association,
Lucknow.
- „ Rai Sahib Srish Chandra Ghose, G. B. V. C.,
Supdt., C. V. D., Assam, Gauhati.

Dr. P. M. N. Naidu, B. Sc., L. V. P., F. F. A. S.,
Mysore Serum Institute.

Baroda Veterinary Surgeons Association.

Mr. G. N. Srikantaiah, G. M. V. C.,
Mysore Serum Institute.

„ D. K. Sen, G. B. V. C.,
Bengal Veterinary College, Calcutta.

„ Bashir Ali Khan,
Veterinary Asst. Surgeon, Sandila, U. P.

„ P. V. Venkatachala Iyer, G. M. V. C.,
Veterinary Asst. Surgeon, Tirupati.

„ M. C. Parikh,
Veterinary Asst. Surgeon, Jambusar.

Mr. M. S. Sastry, G. B. V. C., General Secretary, All-India Veterinary Association, Anantapur, proposed the names of the following members to the subjects committee.

- Messrs :—1. The President of the Conference.
2. The Chairman of the Reception Committee.
3. The Secretary of the Reception Committee.
4. The General Secretary, A. I. V. A.
5. The Editor, Indian Veterinary Journal (His Representative Mr. M. Anant Narayan Rao).
6. Prem Nath Kak, Kashmir.
7. N. D. Dasan, Hyderabad.
8. K. Krishna Iyengar, Mysore.
9. R. V. Date, Baroda.
10. C. J. Fernandez, Jodhpur.
11. Capt. M. S. Apte, Gwalior.
12. Kuppaswamy Sarma, Pudukottah State.
13. K. S. Nair, Madras.
14. P. A. Parthasarathy Naidu, Madras.
15. Ram Swarup, United Provinces.
16. G. G. Oka, Central Provinces.
17. Prof. Karam Ellahie, Punjab.
18. V. V. Nighojkar, Indore State.

19. K. R. S. Aiyar, Bombay.
20. Y. N. Marathe, Bombay.
21. M. R. Chengeri, Bangalore, C. & M. Station.
22. N. T. Kulkarni.

with powers to co-opt.

This was duly seconded by Mr. K. B. Nair, G. B. V. C., B. V. Sc., Professor, Bombay Veterinary College and carried unanimously.

The General Secretary read out the correspondence on the award of medals, etc., to the Members recommended by the various Provincial Associations. It was decided that each Province should be requested to suggest only one name in a year in the name of the several names now done.

Mr. D. S. Laud, G. B. V. C., F. Z. S., F. R. H. S., Superintendent, Municipal Markets, Bombay Municipal Corporation, and Treasurer, the Golden Jubilee Celebration Committee of the Bombay Veterinary College, proposing a vote of thanks to the visitors and others, said :—

Mr. President, Ladies and Gentlemen,

A very pleasant duty has been entrusted to me and that is to offer our visitors a very cordial and sincere vote of thanks. I consider this task a proud privilege of mine mainly for two reasons. The first is that the IX Session of the All-India Veterinary conference coincides with the Golden Jubilee of my Alma Mater which is the first institution of its kind in India and when we are celebrating its Golden Jubilee on the 30th inst, we are not only celebrating the Golden Jubilee of the College but also of higher collegiate Veterinary education which was first broadcast from this important city—the Gateway of India and fittingly called the "*Urbs Prima in India*" by that great noble soul of revered memory—I mean the late Mr. John Henry Steel, M.R.C.V.S., the first Principal and Founder of this college and rightly may be termed Pioneer of "Veterinary Education" in this beloved land of ours.

The second important reason is of the presence of our President, I refer to Mr. Frank Ware, for it was in this very building that he joined the Indian Civil Veterinary Department, as it was known then, over 29 years ago, I refer to December 1907, when he landed

in Bombay for the first time from England to take up the duties of Assistant Principal of our college. I remember the happy memories of those days, where I along with others were his first students, and in this very hall, where he is presiding to day, he used to preside over roll-calls and marched us off to the various wards for hospital duty. I feel really proud, Mr. Ware, that you should have consented to be in our midst to preside over our conference and I am voicing the feelings of all your old students. I am sure you must be feeling proud also to be present on an occasion when we are celebrating the Jubilee of the Institution of which you were once a member of the teaching staff.

Time has wrought changes in you and in us and we your students feel greatly honoured that you should be now occupying the most important position of the Indian Veterinary Service, I mean that of the Director of the Veterinary Research Institute at Muktesar. My previous speakers have dilated on the various qualities of Mr. Ware and I shall not say more. We have listened, sir, to your kind address and we feel wiser, and let me assure you Mr. Ware, that we have learnt much that was unlearnt before.

Now ladies and gentlemen, I have to thank you one and all for kindly responding to our invitation. Our task has not been a light one. We have done our little bit under the guidance of our able leader and teacher Khan Saheb Dhakmarvala. We hope that we shall render a good account of ourselves and give you good time. We also trust that you shall have a good holiday well spent in our midst and when parting from us take back the happy memories of your short sojourn in this premier city of ours.

I thank you once again most sincerely on behalf of myself and my committee and before I finish let me wish you all individually and singly a Merry Xmas and a very Happy New year. May the Great Almighty God confer upon you all his blessings is my concluding prayer.

The Conference adjourned at this stage and moved to the Exhibition ground for opening the exhibition. Mr. R. N. Naik, member in charge of the Exhibition requested Mrs. Ware to open the Exhibition and said :—

Ladies and Gentlemen,

As research in the Veterinary Science is progressing every day new drugs and remedies, instruments and appliances, mineral and other wholesome food products are being manufactured and placed on market. Innumerable number of such goods are available for the treatment and prevention of human ailments but those available for Veterinary purposes are but few. A certain number of Veterinary remedies prepared by quacks are advertised but there is no room for such goods in our hands. In this exhibition, therefore, it has been arranged to display goods which are manufactured by experts and are known to be very reliable. It is needless for me to emphasise how useful it is to acquaint the professional men assembled here with the newly manufactured products such as those exhibited here and it is hoped that they will give a liberal trial to them in their daily practice.

In the end, it is my pleasant duty to thank, on behalf of the convenors of the Bombay Veterinary College Golden Jubilee Celebrations, all the firms who have so willingly co-operated in arranging this small but most useful exhibition.

With these words I request Mrs. Ware to open the exhibition.

Mrs. Ware declared the Exhibition open.

The Exhibition which had been arranged in the Lecture Hall of the College contained among other things, numerous Biological Products useful in Veterinary practice, instruments, drugs and patent medicines, X-ray apparatus, Pathological Specimens, Books, etc. The Delegates and visitors were duly taken and shown round all the exhibits. The gathering then dispersed for *Tea*, after which, a group photo with the President in the centre was taken. The Subjects Committee Members met at 6-P. M. with Khan Saheb N. D. Dhakmarvala in the Chair and decided the resolution and the remaining programme to be followed next day in the open Sessions.

In the night the Bombay Veterinary College Dramatic Society staged "*Blind Man's School*" a Mahratti Drama in the Hospital premises.

SECOND DAY—TUESDAY (29-12-36.)

The Conference assembled at 10 A. M., under the Presidency of Mr. F. Ware.

Khan Saheb N. D. Dhakmarvala, G. B. V. C., B. V. S., Retired Professor of Bombay Veterinary College, moved the following resolution :—

“ While welcoming the proposal of the authorities to impart the highest Veterinary Education to the Indian youth in this country, this Conference is emphatically of the opinion that the proposed NEW CENTRAL COLLEGE at Izatnagar is unnecessary and involves needless enormous expenses—both recurring and non-recurring—and therefore resolves to urge the Government of India to drop this proposal and advise the Provincial Governments which have Veterinary Colleges of their own, to develop them so as to impart the highest Veterinary Education to suit the needs of the country at a minimum cost and with the maximum benefit.

In connection with this Resolution I might say that although I am not in possession of all details of the said College proposed to be started at Izatnagar, this much is certain that nearly 5 lakhs of rupees will be required for a College building etc., and about 2 lakhs will be required as recurring expenditure. Now looking to the number of recruits required every year, it is a question whether such a large initial and recurring expenditure is necessary. Before we discuss the matter fully we should like to be enlightened on the subject by the worthy President.

Mr. K. S. Nair, G. B. V. C., M. R. C. V. S., Lecturer in Surgery, Madras Veterinary College, in seconding the proposition contended that the establishment of one Central Veterinary College and that one College to be recognised by the R. C. V. S., of Great Britain will make the graduates of other Colleges quacks and unqualified practitioners.

The second point was that a scheme of Central College which required to be recognised by the R. C. V. S., is unthinkable as it lowers national self-respect and national honour. Further the conditions in India are so different to those of England that an

extraneous body cannot be expected to show adequate sympathy or knowledge in our domestic educational affairs.

Thirdly he was of opinion that the financial aspect of this scheme does not warrant the outlay of nine lakhs of rupees in capital expenditure and a recurring cost of two lakhs of rupees proposed to be spent for this college, as the results expected are only to turn out 10 Veterinary Surgeons every year. The training of these students is going to cost the country as much as it would cost one to take the R. C. V. S., Diploma.

The proposed new Central College is to have Lecturers and Professors recruited from the United Kingdom. This is another grave objection as there are an adequate number of highly qualified Professors and Principals of Colleges who should be the persons to man such a College.

Lastly Izatnagar in the United Provinces should be the last place to be selected to develop a Central College of Veterinary Science as it is neither a good cattle area nor is it a breeding place of horses. The only advantage claimed is the nearness of Muktesar where the Imperial Institute is situated, and the proximity of the Izatnagar Serum Institute, where certain sections of Veterinary Research are concentrated. These are not the advantages required for a high grade Veterinary College. What is required is a wealth of clinical material of all kinds of animals and a cultural and scientific atmosphere for the future Veterinary Surgeons.

As the time was limited he said that he was unable to touch on various other points and concluded his speech by strongly supporting the resolution as the scheme of the Central College is a very wrong way of approaching a very important and necessary problem.

Mr. S. D. Achar, G. B. V. C., P. G. (Lah.), Superintendent, Mysore Serum Institute, further supported it.

The President said "It came as a surprise to me to hear that it was proposed to move a resolution, on this subject. Though I have powers to rule out such a resolution, yet I do not want to exercise this, since there seems to exist a certain amount of misinformation

regarding the facts of the recommendation for the formation of a Central Veterinary College in India.

In order to improve the standard of Veterinary Education in India, I would suggest there are two alternatives. One is to improve the standard in the present Veterinary Colleges, which I am afraid has not received support from the Provincial Governments and the other is to obtain a certain number of Graduates from abroad to fill the important posts.

Since there exists in India and as you know in Bombay as well a feeling for being self-supporting, it would be better to produce Graduates in this country at cheaper cost than getting them qualified in England or elsewhere.

I would suggest the resolution be put in a revised form by Khan Saheb Dhakmarvala the mover, in which case I would associate myself with it if passed by this Conference ; otherwise my dissension will have to be clearly stated.

Khan Saheb N. D. Dhakmarvala the mover of the original resolution accepting the suggestion from the Chair moved the following revised resolution in its place :—

“ This Conference understands that it has been proposed to open a *Higher Grade Veterinary College in India* and it is of the opinion that the question should be referred to all Local Governments, States and Veterinary Associations for an opinion before any decision is arrived at ”.

This was seconded by Mr. K. S. Nair, G.B.V.C., M.R.C.V.S., supported by Mr. S. D. Achar, G.B.V.C., P. G. (Lah), and carried unanimously.

Professional Papers.

The following professional papers were then read and discussed :—

1. Equine Encephalo Myelities :—By Mr. Prem Nath Kak, L. V. P- (Hons.), Veterinary Surgeon, Kashmir Army.

2. Scabies and its treatment :—By Mr. K.R.S. Aiyar, G.B.V.C.,
Lecturer, Bombay Veterinary College.
3. Selected Articles from Ashwasastra :—By Captain M.S.
Apte, G.B.V.C., Principal Veterinary Officer, Gwalior
Army.
4. Skin Grafting :—By Mr. K. S. Prakasa Rao, G. M. V. C.,
Veterinary Asst. Surgeon, Narasaraopet, Madras.
5. Recent Advances in Physiology :—By Mr. J. P. Damri,
G. B. V. C., Professor, Bombay Veterinary College.
6. Conservation of Goat Virus against Rinderpest :—By
Messrs. V. R. Phadke, G. B. V. C., J. P., M. Mohideen,
M. R. C. V. S., and G. A. Hardikar, G. B. V. C.
7. A brief note on the Goat virus tissue vaccine operations
against rinderpest in H.E.H. the Nizams's Dominions :—
By Mr. Narsingh Pershad, G. B. V. C., P. G. (Mad.),
Veterinary Inspector, Mahbubnagar.
8. Experimental facts about goat virus :—By Mr. P. Shah
Alam Khan, G.M.V.C., Veterinary Assistant Surgeon,
Madakasira, Madras.
9. Rinderpest :—By Mr. B. A. Devrukhker, G.B.V.C., Veteri-
nary Assistant Surgeon, Talegaon.
10. Nutritive Value of Raintree fruits :— By Mr. M. K.
Garudachar, G.B.V.C., P. G. (Edin.), Lecturer, Bombay
Veterinary College.

At this stage the morning sessions came to a close.

After Lunch, the Confrence reassembled at 2-30 P. M. with
Mr. E. S. Farbrother, M. R. C. V. S., I.V.S., Director of Veteri-
nary Services, Bombay Presidency, in the Chair.

The following message from the Editor of the *Indian Veteri-
nary Jonrnal* together with the statement audited of accounts
was read by Mr. M. Aanant Narayan Rao, G. M. V. C., Lecturer in
Parasitology, Madras Veterinary College.

A Message from the Editor, The Indian Veterinary Journal.

Gentlemen,

I wish it were possible for me to do more than send you a fraternal greeting for your *Conference*, but my indifferent health makes that impossible. I, therefore, on an occasion like this, unique in nature and memorable by its importance, feel bound in duty to send you a few words of cheer and hope on behalf of the *Indian Veterinary Journal*, which you have all contributed in increasing measure to sustain and thus have enabled it to serve the Profession for well over 12 years now. There is a saying in Southern India that if a thing lives for 12 years, it may well hope for a long lease of life afterwards. Let us hope the *Official Organ of the All-India Veterinary Association* will continue its useful career for many more years to come!

Gentlemen,

It fills my heart with glee to think (and I am sure I am sharing it with the entire congregation that has met now in Bombay) that it has pleased *Providence* to enable the Premier Veterinary College in India to celebrate its *Golden Jubilee*. Not long ago, it will be remembered, its very existence was threatened and the whole Profession in India convulsed with fear at the thought of the impending danger! Thanks be to God and the Government of Bombay for the very happy termination of the crisis!

It is on occasions like that, the inestimable value of an out-spoken *Journal* is fully realised. But I am afraid my out-spokenness is at once my weakness and strength. But I am only human and I can serve the cause entrusted to my care to the best of my lights. Gentlemen, I feel I can make room for others to serve the Profession from the Editorial Chair! None will be happier than myself if others come forward to shoulder the burden.

What with professional obligations during the racing season at Madras and what with my indifferent health, I have not been able to attend the *Conference*. But I am with you in spirit and wish you all and the *Conference* best of luck, under the guidance

of Mr. F. Ware, who has done so much for the improvement of the Veterinary Department to the best advantage of the agriculturists and has been trying his best all along to demonstrate and prove to the Government and the public the importance of the Veterinary Science and the Veterinary Profession as the chief factor for the prosperity of agricultural India.

On an occasion like this, every one would be eager to know the progress the *Journal* has been making these twelve years and half. I have been trying my best to nurse the baby entrusted to my care in the best way possible. If there has been any good come out of that it is solely due to the co-operation I received at your hands and if there has been anything wanting the fault was my own. You will be glad to know that the number of subscribers has been steadily increasing and to-day we have 993 subscribers on the roll. The *journal* has attracted subscribers from the far off Australia, America and Germany and they have nothing but praise for the *journal* as is seen from the numerous articles contributed to the *Journal* by eminent Professors and Practitioners and also from the large number of Exchange Journals from different countries abroad.

One lamentable fact which I cannot help bringing to your notice is the large amount of arrears of subscription and most of our colleagues from different Provinces and States not yet subscribing. I need not mention to you how important both these two things are necessary for the success of the *journal*. When these two factors are set right, it should not be difficult to convert the *journal* either to a bi-monthly or a monthly. I appeal to all those in this assembly who are not yet subscribers, to enlist themselves as such and thus make the *Journal* strong.

The statement of accounts for Vols. XI & XII is published in the first issue of the twelfth volume and the second issue of the thirteenth volume respectively.

Mr. M. R. Chengeri, G. B. V. C., P. G., Superintendent, Tasker Veterinary Hospital, Bangalore, moved for the adoption of the statement of accounts as presented by the Editor and published already in July 1935 and October 1936 in *Indian Veterinary*

Journal. This motion was seconded by Mr. D. S. Laud, G. B. V. C., F. Z. S., F. R. H. S., Superintendent of Markets, Bombay, and adopted unanimously.

Next the remaining two papers were read and discussed on the following subjects :—

11. Guinea Grass in some soils :—By Mr. M. K. Garudachar, G. B. V. C., P. G. (Edin.) Lecturer, Bombay Veterinary College.
12. Use of Deodar Oil :—By Mr. Ram Swarup, G. P. V. C., Veterinary Inspector, Sahranpur, U. P.

The General Secretary of the All-India Veterinary Association then read out the draft revised Rules and Bye-Laws for the working of the *All-India Veterinary Association and the Indian Veterinary Journal*, as framed by the Committee appointed for the purpose, and moved for its adoption. This was duly seconded by Khan Saheb N. D. Dhakmarvala.

Mr. K. Krishna Iyengar, (Mysore) moved for the deletion of Rule No. 18, which says that “any member who is in arrears of subscription for a period of one year shall *ipso facto* cease to be a member, subject however to reinstatement on payment of the arrears in full.” This was duly seconded by Mr. T. M. G. Konar (Madras).

Mr. S. D. Achar (Mysore) proposed to substitute the words “three years” for “one year” in the above rule. This was duly seconded by Mr. Ram Swarup (U. P)

Further, Mr. D. S. Laud moved to substitute “two years” for “one year” in the same rule and seconded by Mr. N. D. Dasan.

The amendment of Mr. S. D. Achar was carried by a large majority of votes.

Mr. M. R. Chengeri (Bangalore) moved that the revised Rules be circulated among members and put before the next General Body Meeting.

Mr. M. R. Chengeri's motion was duly seconded by Mr. N. Krishnamurthi. When it was put for voting, it was lost by a

majority voting against it. There being no further amendments, the original proposal of the General Secretary was duly put for voting in the amended form. (The amendment being "three years" for "one year" in Rule No. 18 already mentioned.

This was carried by a very large majority of votes.

At this stage Mr. F. Ware the President of the Conference arrived and occupied the Chair.

Mr. M. S. Sastry. G. B. V. C., the General Secretary, A. I. V. A., next read out the report on the working of the A. I. V. A., from 30—12—34 to 29—12—36 together with the statement of accounts for the period.

**Report of the Work of the All-India Veterinary Association,
From 31—12—34 to 29—12—36.**

*The Following Programme Was Carried Out
During The Period :—*

1. Necessary assistance was given to the Editor, *The Indian Veterinary Journal* for the publication of the Journal.
2. Revised Draft Rules for the *All-India Veterinary Association* and for the working of *The Indian Veterinary Journal* were framed by the Sub-Committee appointed for the purpose.
3. Materials have been collected and arranged for the publication of the '*Register of Veterinary Surgeons*' in *India*.
4. Provincial Governments and Indian States were requested to give effect to the several recommendations in the various Resolutions of the last All-India Veterinary Conference.
5. Necessary action was taken to help the Bombay Veterinary College Golden Jubilee Committee for the Jubilee celebration.

6. It is a matter of great delight to announce the enrollment of Mr. S. D. Achar, G. B. V. C., P. G. (Lah.), Superintendent, Mysore Serum Institute, Bangalore, as the first *Life-Member* of the All-India Veterinary Association under the revised Rules, and this splendid example has been followed by Mr. C. J. Fernandez, G. B. V. C., I. D. D., Director, Animal Husbandry Department, Jodhpur Government; both deserve our heartiest thanks.

N. D. DHAKMARVALA,
President.

M. S. SASTRY,
General Secretary.

**Statement of Receipts and Expenditure of the All-India
Veterinary Association, From 31-12-34 to 29-12-36.**

RECEIPTS.			EXPENDITURE.		
	Rs.	A. P.		Rs.	A. P.
To Balance on 30-12-34.	125	4 0	By Typewriter.	85	0 0
„ Subscription.	153	0 0	„ Railway fare of the General Secy. and Treasurer.	71	15 0
„ Interest.	0	1 0	„ Postage, Telegram and M. O. com- mission.	28	15 0
„ Loan from I. V. J.	100	0 0	„ Fees for Legal Adviser.	15	0 0
			„ Honorarium to Typist.	10	0 0
			„ Stationery.	2	12 0
			„ Bank commission.	0	4 0
			„ Miscellaneous.	22	10 3
			„ BALANCE	141	12 9
TOTAL	378	5 0	TOTAL	378	5 0

Balance on hand on 29-12-36 including the cost of badges.

In Savings Bank account	Rs.	6	1	0	} TOTAL RS. 141 12 9
Amount with Treasurer.	„	0	13	0	
Amount with General Secy.	„	134	14	0	

CHECKED.

PREM NATH KAK,
(Kashmir)

N. D. DHAKMARVALA,
President.

M. S. SASTRY,
General Secretary.

Mr. Prem Nath Kak, L. V. P. (Hons.) Kashmir, moved for the adoption of the report and statement of accounts presented by the General Secretary. This was duly seconded by Mr. N. D. Dasan, (Hyderabad), and adopted unanimously.

Mr. M. S. Sastry announced at this stage amidst great applause that Capt. M. S. Apte of Gwalior Army has declared that he would enroll himself as a Life-Member of this Association. The General Secretary further thanked Messrs. Achar, Fernandez and Apte for their noble example and expressed the hope that others would follow this excellent lead.

Election of Office-bearers for 1937 :—

President :—*Khan Saheb N. D. Dhakmarvala*, was unanimously re-elected as President amidst great applause, duly proposed by Mr. K. Krishna Iyengar of Mysore and seconded by Mr. S. D. Achar.

General Secretary :—Capt. M. S. Apte of Gwalior Army duly proposed and Mr. A. H. Khan of Bombay seconded that Mr. M. S. Sastry be re-elected as General Secretary.

Mr. M. S. Sastry at this stage requested that he might be relieved of the duties of the General Secretary as he has been either Secretary or General Secretary all these years either of the Provincial Association or of the Central Association now for nearly 17 years. He thanked the members for the opportunity given him to serve the profession all these years and for the continued trust and confidence placed in him by the profession in general. He requested that a new General Secretary be elected this time and assured of his own help to the Secretary whom the house may elect newly.

Mr. S. D. Achar proposed and Mr. K. Krishna Iyengar seconded that Mr. D. S. Laud of Bombay be elected as General Secretary.

The President said "there are two proposals and I will put them for vote". Soon Mr. Laud withdrew, since the audience urged Mr. Sastri's continuance. Then the President said that he had experience and knew full well the responsibilities of being the

Secretary of an Association. He knew Mr. Sastry conducting this work for the last 15 or 16 years and that in his opinion too, he deserved to be relieved of this heavy burden. The audience was moved and thus *Mr. Laud was unanimously elected.*

Mr. Laud then thanked the Conference for his unanimous election.

Treasurer :—Mr. M. S. Sastry, G. B. V. C., Veterinary Assistant Surgeon, Anantapur, was proposed by Mr. N. Krishnamurthi and seconded by Mr. Prem Nath Kak, and *Mr. M. S. Sastry was unanimously elected Treasurer.*

Capt. M. S. Apte thanked Mr. Sastry for all his valuable work and so also the out-going office-bearers, on behalf of the A. I. V. A. This was heartily responded by the Conference.

Khan Saheb Dhakmarvala briefly reviewing the excellent work done by Messrs. Mushtaq Ahmed Choudhury, Y. N. Marathe and M. S. Sastry, for which three Gold Medals were decided to be awarded by the All-India Veterinary Association, the Bombay Veterinary Medical Association and the Golden Jubilee Celebration Committee of the Bombay Veterinary College respectively, and requesting Mr. Ware to kindly present the medals to them, said :—

Mr. Mushtaq Ahmed Choudhury, G. P. V. C., is the Hospital Surgeon and Radiologist in the Punjab Veterinary College Hospital. He invented and prepared : (1) A Prolapse Recti Tube, (2) A Prolapse Uteri Tube, (3) Veterinary Surgeons' Emergency Set, and (4) An Improved Universal Portable Yoke. These valuable and useful articles were demonstrated by him in the All-India Veterinary Conference in December 1934, in this College and in appreciation of them, the Conference unanimously resolved to award a Gold Medal to Mr. Mushtaq Ahmed Choudhury by the All-India Veterinary Association at the time of the Celebration of the Golden Jubilee of the Bombay Veterinary College.

These useful Veterinary Appliances and Instruments have subsequently earned also a Gold Medal for him from the Imperial Council of Agricultural Research in February, 1936.

Mr. Yeshwant Narayan Marathe was born on 19th April, 1882, at Belgaum. He graduated from the Bombay Veterinary College in the year 1903, with high distinction. Immediately after he was appointed as a Veterinary Graduate in charge of Poona City Hospital (1904).

When the Department was re-organised he was selected to the post of Inspector in the year 1910. From that date onwards he was in charge of different divisions such as Belgaum, Poona and Ahmednagar till 1933. Since then he was Personal Assistant to the Director and Deputy Director till he retired as Class II Officer on furlough on 23rd December, 1936.

It is he who started the rinderpest campaign at Alur (1914) when such a thing was a novelty which was very much appreciated by the people. Throughout his career he was always for rural uplift movement.

It was he who organised the Bombay Pinjrapoles. The present methods of trying to convert these Pinjrapoles as part of Breeding Stations was entirely due to his solid suggestions.

It was he who organised a Cow-keepers, Association in Poona in 1932.

During the last two years he was the Joint Honorary Secretary of the Poona S.P.C.A., which has started a fully equipped touring motor dispensary in that district in parts where Veterinary aid is not provided by the Local Board. As the Trustee of the Poona Pinjrapole he has started organising it on a sound basis.

We are now happy to note with great pleasure that he is to start a new life in Baroda State where he goes as the head of the Veterinary Department. There we wish him all success in all his constructive activities where he gets ample scope as head of the department.

Last but not least in importance is to bring to your notice his activities in connection with Bombay Veterinary Medical Association. He is the father of the Association and as a prudent father

he bequeathes to his successor a good heritage of purse. "Money makes the mare go". But for his constant application to the task as a Treasurer we would not have been able to assemble in this Hall and thrice for the All-India Veterinary Conference. He also attended the All-India Veterinary Conferences five times and each time he was a moving figure throughout. His jovial personality and his hospitable qualities are well known to all assembled here. He richly deserves the Medal.

Mr. M. S. Sastry, G. B. V. C., is the General Secretary of the All-India Veterinary Association. After graduating from this College, he practised the profession privately for some time in Bangalore and then entered the Madras Civil Veterinary Department. He worked for about two years in the Army Remounts in India during the Great War.

His keen interest in the Rural Uplift Work and Propaganda is very well known. He held the first Rural Development Conference and Exhibition in 1927, in Madanapalle in S. India. While on special duty in the Rural Development Scheme in Trivellore in Madras Presidency he conducted a comprehensive "Socio-Economic Survey and a Detailed Live-stock Survey of ten villages"—first of its kind in this country. During this period in the presence of distinguished American Representatives of Rockefeller Foundation, Prof. Jameson of the London School of Hygiene, Surgeon General Sir Frank Connar, I. M. S., and other eminent workers, he demonstrated, by means of his surveys and other work, "The Intimate Economic Link Between Animal Disease and Man Disease" and the "Animal Wealth and National Wealth of the Country" and this was very much appreciated by the distinguished gathering. His work in connection with the Health Week Celebrations and Health Surveys of Madanapalle Town has earned the appreciation of the Public Health Department in Madras. He has been a keen and active worker in S. P. C. A., in all the places he was stationed.

He took the leading part in establishing the Veterinary Association first in Madras Presidency in 1920, and holding the first Provincial Conference there in 1921.

Later on, he toured over many parts of India to establish Provincial Veterinary Associations, took leading part again in founding the *All-India Veterinary Association* and holding the first *All-India Veterinary Conference* in Lahore in 1923, under the presidency of Col. Walker. Later on, in 1924, he again took the leading part in founding the *Indian Veterinary Journal* the official Organ of the All-India Veterinary Association, and has been ever since actively helping this useful *Journal* in its career for over 12 years.

In appreciation of his numerous useful public activities and valuable services and sacrifice in the advancement of the Veterinary Profession in this country, the Golden Jubilee Committee of the Bombay Veterinary College resolved to award this *Gold Medal* to Mr. M. S. Sastry, an old Graduate of this College.

Messrs. Mushtaq Ahmed and Marathe being absent the General Secretary was requested to forward the Medals to them. Mr. F. Ware presented the medal to Mr. Sastry amidst loud and deafening cheers and congratulated him on the well deserved award. Mr. Sastry who felt embarrassed at the good things said of him by his old teacher Khan Saheb, expressed his heartiest thanks to the Golden Jubilee Committee for the honour done to him. He felt it particularly a great pleasure since he received this medal at the hands of his old teacher and Officer in the very institution in which he learnt his first lessons in Veterinary Science and in the midst of his numerous friends and colleagues.

Mr. S. D. Achar thanked the President for the kind and congenial manner in which he presided over the Conference and for his valuable services. This was carried with great applause.

Mr. Prem Nath Kak said:—"Before we disperse and carry back with us the happy memories of this conference on behalf of the Delegates, I thank the Reception Committee for the fine arrangements of board and lodge." The President of this Committee Khan Saheb Dhakmarvala was specially thanked and so was Mr. Garudacharya for the fine amusements he had arranged. Principal Phadke who did all to make Delegates' stay very comfortable was gratefully thanked and requested him to convey

thanks to the students and volunteers who strained every nerve to make the show a great success.

Mr. D. S. Laud proposed a hearty vote of thanks to the Director of Veterinary Services, the Principal of the Bombay Veterinary College, the Secretary of the S. P. C. A., Bombay, the volunteers and all others who have rendered invaluable help in making the sessions a grand success. This was carried with acclamation.

The President (Mr. Ware) in his closing remarks said that he would thank all the Members for having extended to him the opportunity to preside over the deliberations of the Conference at a time when they were holding the Jubilee Celebration of the College. He said they had a good deal of discussion on various matters and they know how much good these meetings meant to all of them and would clear most of the doubts. He said he had heard there was a record attendance of nearly 180 members, which of course would show the interest they were all taking in such meetings. This is the Ninth meeting they have had and three times the Conference was held in Bombay. Bombay wants rest. He suggested to them to go round and hold these meetings in different parts of India, in which case they would of course get better ideas. The other Provinces should come forward to invite. He said "I shall once more thank you for the very kind words and reception you accorded to me" and then declared the Conference closed.

Three hearty cheers were given to the President and the revered Khan Saheb.

In the night at 9 O'clock, the Bombay Veterinary College Hindi Dramatic Association entertained the Delegates staging the Urdu Drama "*Mushrikki-Hur or Orient-Beauty*" by Radhe Shyam. Almost every actor acquitted himself very well on the stage.

M. S. SASTRI, G. B. V. C.,
General Secretary.

N. D. DHAKMARVALA,
President,
A. I. V. A.

31st December 1936,
Bombay.

Appendix A.

WELCOME ADDRESS

BY

Khan Saheb N. D. Dhakmarvala, G. B. V. C.,

Chairman, Reception Committee.

Gentlemen,

As chairman of the Reception Committee of the Bombay Veterinary Medical Association, I feel a peculiar pride and pleasure in welcoming you here to-day. I am deeply sensible of this honour and trust that with your help and goodwill, our discussions, deliberations and decisions will prove as usual, productive of good work, as in past years.

In the first place I have to express my sincere thanks to Mr. F. Ware, F. R. C. V. S., I. V. S., Director, Imperial Veterinary Research Institute, Muktesar, for kindly accepting our invitation to open and preside over this Conference. I need hardly say that we appreciate it very much since amongst his multifarious duties he has found time to come here all the way from Muktesar. Mr. Ware needs no introduction and we congratulate ourselves for having him amongst us and his presence here to-day is a proof of his great sympathy towards the Conference. When he was appointed to the Indian Civil Veterinary Department in 1907, the first post which he held was that of Assistant Principal of the Bombay Veterinary College and some of us, and especially I, look back with pleasure to our personal associations with him. Therefore he does not come amongst us as a stranger. Since his transfer from here to Madras, he held high positions in the Civil Veterinary Department of that Presidency and introduced many useful changes and rendered great service to the Department in its organisation. He now holds the highest position as the Director of Imperial Veterinary Research Institute with great credit and has been doing his best for the expansion of the Department. We therefore congratulate ourselves that this Conference is to be opened by him.

In the second place I have to thank all the Members of the profession and other gentlemen who have come here as representatives of different Provincial Associations, Municipalities and other bodies. It is a great pleasure to meet and greet all those who have taken the trouble to come from long distances. I trust that Bombay which is considered to be the second City in the Empire, will do its utmost to make your stay here a very pleasant and profitable one and when you return to your homes, you will be able to carry with you pleasant memories of this Conference. As far as Veterinary Associations are concerned, I am proud to think that Bombay claims to have taken a lead in the matter, as the first Association of its kind was started in 1886 by the late lamented Professor J. H. Steel — the first Principal of the College, whose untimely death at the age of 37, I shall never cease to deplore.

Although Conferences of this kind were held in previous years in the Cities of Lucknow, Lahore, Madras, Calcutta, etc., we are proud to say that this is the third time it is being held in Bombay and that too within two years, the last one having been held here in 1934. Besides, we decided to invite the Conference here to hold its Ninth Session at a time when the Bombay Veterinary College is celebrating its Golden Jubilee and it is in the fitness of things that it should do so as you have the advantage of attending two functions *viz.* one Social and the other Professional.

It is superfluous and unnecessary for me to reiterate the necessity and usefulness of holding such Conferences annually in different Provinces. This movement is now advanced so much that its success justifies us in its continuance in future. We are greatly satisfied with its growth and expansion due to the support and co-operation received from all, and especially to the indefatigable zeal and arduous work of the General Secretary Mr. M. S. Sastry, who puts his heart into the work and never rests without making this Conference an annual event. The Conference serves a useful purpose in bringing professional brothers together and stimulating interest in discussions on professional subjects and their difficulties, and meeting new members and old friends. We are all bound together in the common cause of promoting the interests of our profession but co-operation is necessary for the purpose. We

therefore congratulate ourselves that we have in the All-India Veterinary Association an organisation which stands to uphold, in every way, the dignity and honour of our profession and to provide a sense of *Esprit-de-Corps* amongst all members. I trust that our deliberations will help to solve the problems engaging the attention of our profession.

It is customary for the Chairman to introduce the proceedings with some remarks about Professional matters and therefore it is with great pleasure that I do so as shortly as possible.

We have assembled here to confer on various matters pertaining to the uplift of our profession, to devise means for its further activities, to compare notes, to settle doubts and difficulties and to help one another in the solution of various problems confronting us. In order to carry this out successfully it is necessary that as many representatives as possible should attend and take part in the deliberations instead of each Province working on its own in a sort of water tight compartment.

Many interesting and instructive papers and clinical cases will be read and discussed during the course of the present Session and I trust that our worthy President will give us the benefit of his experience by taking part in the deliberations.

In welcoming you here to-day and meeting again many of my former pupils and old friends, memories of the past are naturally stirred up in me. It is now nearly 47 years since I first joined the staff of the Bombay Veterinary College and retired in 1927, after serving in different capacities for 37 years. During this period many changes have taken place in Veterinary work in India which have affected all aspects of our work and revolutionised it.

Since the Session of the last Conference, the Veterinary profession has sustained a great loss by the deaths of Major R.F. Stirling on 16th August 1935, Dr.Griffith Evans on 7th December 1935, and Major D.H. Shirke on 12th Desember 1935. We offer our heart-felt sympathy to the bereaved families of the deceased.

In my Presidential Address at the time of the last Conference, I urged the necessity of "*drink more milk*" campaign and the

importance of a pure milk supply both to adults and infants. The small milk yield of the average cow in India is well-known. It is a matter of satisfaction to note that this is now going to be remedied by selective breeding and proper feeding. First a powerful impetus is given by His Excellency Lord Linlithgow—the Viceroy—to the cause of cattle breeding in India as the result of his gift of two pedigreed bulls to the Delhi Pinjrapole and the District. This example is being earnestly followed by others which will lead ultimately to the economic welfare of the country at large. Besides this, indiscriminate slaughter of milch cattle and young stock is to be stopped. Investigations in these matters are being carried on by Marketing Officers in the various Provinces in India. They are searching for facts and figures concerning farm products and are preparing reports which will be published by the Central Marketing Adviser with the Government of India.

The last census of cattle shows that there are some 12 lakhs of buffaloes and 18 lakhs of cows in the Bombay Presidency, in addition to very large herds of goats from which supplies of milk are obtained. Besides this, there are about 2,500 families maintaining cows or buffaloes for their private use. But as the yield of milk varies according to the breed, the urgency of improving the strain of milch cattle is apparent. Although the Bombay Presidency is considered an important milk producing area, the total production of milk distributed over the entire population allows less than one pice worth of milk per head per day. This shows that there is a great scope for increased milk drinking as some of the most important milk producing areas in the Presidency prepare butter entirely.

Recently Col. Olver, Government Animal Husbandry Expert, visited big Cities to inquire into the slaughter of milch cattle and the matter is thus receiving the urgent attention of Government.

Besides this, the supply of milk in Cities requires to be properly controlled. Milch cattle are often kept in a highly insanitary condition, often standing knee-deep in filth specially during monsoon. The vessels are not properly cleaned and the fact that milk is transported to its place for sale in cleaner vessels does not in any way diminish the danger of its pollution. The milkers are careless

with their herds, and persons transporting the milk are careless as to what happens to it. The vessels are left uncovered, or their mouths are stoppered with rusty tin caps or dirty straw. When the carriers return home, it is not unusual for them to carry back in the utensils articles that ought not be put into milk utensils at all. A City's milk supply should be above reproach. While it is to the credit of most big cities that their water supply is pure, it is a thousand pities that their milk supply is not.

Therefore stringent regulations should be passed to prevent the sale of impure milk. The problem should be tackled from its source. There are some well maintained Dairies, and holders and workers of badly kept farms should be taken to such Dairies for instruction. They will then shed their ignorance and adopt cleaner methods in their work. Of course it costs something to remove ignorance, but the ignorance should be removed if India wants her urban milk supply to be quite pure. Now is the most opportune time to adopt measures to achieve this ideal. The Viceroy's advice to supply free milk to unnourished school children is evoking a country wide interest, and the steps which the Provincial Marketing officers have taken in collecting statistics about milk production in all the Provinces may be made the starting point for initiating the much needed campaign for pure milk supply for every body. We must stop the practice of sending milch cattle to slaughter houses if we want to make India a land of milk. Slaughtering of milch cattle indiscriminately will bring about one day the extinction of our best animals and some of our agricultural and national wealth. Dairying and Animal Husbandry should be encouraged and developed as much as possible. Besides the use of pedigreed bulls, arrangements should be made for the supply of proper food when green grass and grazing grounds are scarce. We know that cattle thrive on green grass. Therefore silage as a means of preserving green grass in silos for lean days in summer has much to commend itself in India to solve this problem.

The question raised by Humanitarian Leagues in different parts of the country for legislation to deal with the *slaughter of cattle* has raised some problems. His Excellency the Viceroy has also given this matter very sympathetic consideration and in fact

one direct result of this has been the recent tour of Col. Olver, Animal Husbandry Expert with the Imperial Council of Agricultural Research. He has visited different parts of India where the improvement scheme has taken hold and will no doubt be in a position to assure the Viceroy and Humanitarian League supporters that the improvement scheme is going to have a definite influence on cattle slaughter.

As a result of the Royal Commission on Agriculture, efforts were more or less solely concentrated on the purely agricultural side, and the Animal Husbandry side had to content itself with small grants. But the Viceroy, with a remarkable insight into the matter has very aptly started out to balance the scales by directing the country's efforts to the much needed and most important animal husbandry side. Improvement of breeds and their care could not be effected without going to the root of the whole question and knowing the conditions they had to deal with. Investigation Officers are now appointed in every Province to investigate various diseases of cattle.

The establishment of herd books for dairy breeds is another step that has been decided by the Research Council and will tend to gradually place the breeding of dairy cattle on a more systematic basis. The sterilisation of undesirable bulls in the Bombay Presidency and the Cattle Improvement Act have been brought into force. The immense amount of good that will result when this Act is worked generally can be imagined when one considers that in each village there are as many undesirable bulls as there are cows. These bulls are of little value and when the villager gets hard up, he sells it to a butcher but not before it has done much harm. In order to improve the breeds of cattle in India, we would require one pedigreed bull for every 50 or 60 cows. But at present in some villages there is one bull to every 1000 cows. Another difficulty in the way of cattle improvement is the practice in the villages of freely mixing cows and bulls so that there is indiscriminate breeding.

In the ancient Vedas, cows, oxen, buffaloes and goats have been described as constituting the true wealth of man. We also consider that no other possessions can exceed these in real worth. Therefore

in the present Viceroy we repose great hopes because of his decision to help the cause of Livestock in this country. By attempting to see for himself the work done by public servants in their various offices, he has revived a practice followed by the Kings of yore and won the hearts of the people. We appeal to the people to take full advantage of the new scheme of improving cattle, inaugurated recently by the Viceroy. The scheme is bound to have far-reaching results.

There is also a scheme of goat breeding in the United Provinces and in the Punjab and Bombay, Sheep breeding schemes have been subsidised to improve the quality of indigenous sheep. Poultry breeding schemes have also been launched in these Provinces and methods for combating poultry diseases are being investigated at Izatnagar. Hitherto poultry farming in India has been largely on a domestic scale. Now the decision is to conduct it on national and scientific lines. At the Izatnagar Institute, research will be carried on into the *nutrition and genetics of poultry*.

It has long been a custom among Hindus to purchase bulls of good quality and set them at large for breeding. But under the old system the results have not been the best. The Viceroy's plan is to improve the old method and in particular to systematise the use of high bred bulls and keep records of results in the same way as with thoroughbred horses.

The Civil Veterinary Department is an important adjunct to the Agricultural Department. Few Departments of Government have done so much to improve the condition of the Village Uplift and maintain direct contact with the rural life as the Agricultural and Veterinary Departments.

You must be aware that the Secretary of State for India has approved of the policy of replacing British Officers of R.A.V.C. in India by Indian Commissioned Officers. This policy will provide every Indian Mounted Unit with the services of a trained M.R.C.V.S., for the proper application of modern Veterinary Science to the problems of reducing animal wastage. There will be about four vacancies a year during the next eleven years and subsequently two per year. This reorganisation gives great encouragement to

the youth of India to study Veterinary Medicine and to join an interesting and scientific branch of the Army. But it seems that the response has been poor regarding these careers which have been opened to Indians. Because it costs nearly Rs. 25,000 for an Indian who does five years at a College in England and the minimum qualification for the service can be obtained only by study in the British Isles and there are not at present enough number of Indians studying in England to fill these vacancies.

At present there are Veterinary Colleges in Madras, Bombay, Bihar and Bengal with a course of three years. Lahore is the only exception with a four years' course.

Under the circumstances the obvious plan appears to be the adequate training of Indians in the Indian Veterinary Colleges. There are good ones in Bombay, Madras, Calcutta, Patna and Lahore but the trouble with them is that the training which they give is not considered upto the standard required.

We understand that the Government of India are now contemplating of having a Central Veterinary College with a five years' course — a move in the right direction. When this is done, there will be no necessity for Indians proceeding abroad.

Horse Breeding in India.

The main requirement of India is a prosperous agricultural population and Horse breeding should be considered an integral part of agriculture and it is essential that this industry should be developed along with cattle breeding. The profitable horse market has been captured by imported horses which are encouraged to come into India by the large number of races provided for them with very valuable stakes. But it is necessary to stimulate a market for Indian horses through the race course. Racing supplied the most profitable market for horses all over the world. It is a permanent institution and India should not allow this valuable market to be captured by foreign horses.

The country gave away nearly 12 lakhs of rupees in the shape of stakes to foreign horses and only Rs. 2½ lakhs to Indian horses. How can the industry develop under these conditions? Therefore racing authorities should stimulate the Indian Industry by keeping adequate stakes for Indian horses. In the last meeting of the Council of State, one member urged protection to Indian bred race horses by the levy of an import tax but it is a pity that the proposal was lost.

The Bombay Veterinary Medical Association has 129 members on its list. The number is decreasing every year because Associations have been started lately in Sind, Baroda etc.

There is one important matter to which I wish to draw the attention of all members. It is that every member should contribute material in the way of an original article or clinical case report for publication in the *Indian Veterinary Journal*—the organ of the All-India Veterinary Association—which is being so ably conducted by Mr. P. Srinivasa Rao of Madras. It is our duty to give full support to this *Journal* whose existence depends largely upon its membership and contribution of professional matters for publication.

Before concluding, I am voicing the opinion of all members of the Association in saying that they are grateful to the Secretaries Messrs. Date and Aiyar, and the Treasurer Mr. Y. N. Marathe, in helping the Committee to make this Conference a success.

We trust that we will be able to learn a great deal from the deliberations and discussions which will take place during the course of the meeting of the Conference. I am sure that we shall be able to give you an excellent meeting here which will be not only of benefit to us from a

scientific point of view but also as a relaxation from work and an enjoyable holiday.

I have also to thank the Director of Veterinary Services, Bombay Presidency and the Principal of the College for allowing us the use of the College building and compound for holding this Conference and of the use of the Hostel for the residence of the Delegates.

In conclusion I trust that you will help the Chair by giving him your support and co-operation, so that this Ninth Session of the All-India Veterinary Conference will be as successful as its predecessors in its business.

With these few remarks, I now request Mr. Ware to kindly open the proceedings of the Conference.

Appendix B.

PRESIDENTIAL ADDRESS

BY

F. WARE, F.R.C.V.S., I.V.S.,

Director, Imperial Veterinary Research Institute, Muktesar.

Khan Saheb Dhakmarvala, Ladies and Gentlemen,

First I should like to say how much I appreciate the honour you have done me by asking me to preside at this Session of the All-India Veterinary Conference, which is more than usually important as it synchronises with the Golden Jubilee Celebrations of the Bombay Veterinary College, and I need hardly tell you that to have an opportunity of revisiting the place where I commenced my work in India over 29 years ago, particularly at such a time as this, gives me the greatest pleasure.

In his address of welcome Khan Saheb Dhakmarvala has called attention to the great stimulus that has recently been given to Animal Husbandry work in this country by the interest taken in it by His Excellency the Viceroy who, as you all know, has recently presented to Delhi province several pedigree stud bulls and a collection of dry cows, which would otherwise have found their way to the slaughter house, and thereby set an example which will certainly be followed by others who have the welfare of their country at heart. As our destiny is so largely bound up with the development of Animal Husbandry I propose to say a few words to you this afternoon on what I conceive to be

"The Future of the Veterinary Profession in India."

It is true that our profession has had a somewhat chequered career in the past and at times it has seemed sometimes as if it would be absorbed by one or other of the professions with which it is closely linked — and so lose its identity. However, we may congratulate ourselves that other counsels have prevailed, and that Veterinary Science has so progressed that to-day efficient Veterinary Services are looked upon as an absolute necessity in any State run on modern lines. We still have to consider, however, the exact position which such Veterinary Services should occupy in the administration of a State and to what extent the Veterinary Profession itself is providing for the training of suitably qualified officers.

Let us first revert for a moment to the term "Animal Husbandry" and endeavour to find a definition for it, for we shall then be in a better position to understand what is required for its development. Animal Husbandry may be defined as the art of producing, maintaining and disposing of the domestic animals and poultry in such a way that they will perform those duties which man requires of them in the best possible manner, and its development should be

based on the three Sciences of Animal Medicine, Animal Nutrition and Animal Genetics.

Now, there are two points in this definition to which I would call your attention. The first is the perfect analogy that exists between, the term Animal Husbandry, as applied to the welfare of the animal population, and Public Health as it concerns the human population, and the second is that the three Sciences, on which both Animal Husbandry and Public Health are based, are all founded on Physiology, which, of course, is the most important subject in the Veterinary curriculum. In fact one might say that Veterinary Science and Animal Husbandry represent the Science and the Art respectively of the same subject.

We must now ask ourselves the question whether graduates in Veterinary Science in this country can be described as fulfilling all that is required by the above definition, for herein lies their future, and unless they have received adequate training and can converse intelligently in all the subjects which go to make up their Science they will not be accepted by the public as complete Animal Husbandmen.

While on this subject of education I should like to refer to the question of specialisation, which to-day is of such importance. No one man during his collegiate course will obtain more than a general knowledge of the three subjects of Medicine, Nutrition and Genetics. Even less then is he likely to become an expert in such special subjects as Biochemistry, Entomology, Helminthology, &c., in the short time available for their teaching in a Veterinary course, so that at present for our experts in these subjects at Veterinary Research Institutes we usually have to go to the pure Scientists to obtain our requirements, but there is no reason why a man should not specialize in

one of these subjects, either concurrently with or after taking his Veterinary course, and how much more useful a Specialist research officer would be at a Veterinary Research Institute if he possessed a Veterinary diploma in addition to his other qualifications?

One often hears it said that the Veterinary Services in this country are poorly paid, but one must look at such a question as this also from the point of view of Government and one wonders whether it might not be easier to convince Government that "the labourer (in this case the Veterinary graduate) is worthy of his hire" if his training were of a more comprehensive nature and his usefulness to the public more evident. I should be the last to decry the importance of effective measures of disease control or disparage what the Veterinary field staffs have done in this matter, but if the Veterinary Department is going to act as a Public Health Department for animals in this country, or more correctly as an Animal Health Department, then it must include the subjects of Animal Nutrition and Animal Genetics in its repertoire, for no Public Health Department would be considered complete, without them.

And there can no longer be any doubt as to the necessity for departments of Animal Health or Animal Husbandry in India. Recent surveys have shown the enormous amount of wealth that is locked up in the livestock of this country, and men are wanted to take care of all these animals from the time of conception to the disposal of their carcasses and to develop the many industries connected with them, and who are more suitable for this than Members of the Veterinary profession?

A strong and efficient Veterinary profession is required in every country for the proper care and development of its livestock, and there will always be room for a separate

Government Veterinary Service standing, and, we will hope, pulling its weight between a Public Health Service on the one hand and an Agricultural Service on the other.

Having reached the last few years of my service in India perhaps I may be allowed to offer a few words of advice to the younger members of the profession here to-day.

I would say first of all "Young men, know your job. Virtue is its own reward" and a man who works quietly and patiently is of far more use to his profession and will usually reach greater heights than a man who is more vocal especially in regard to his supposed grievances and less conversant with the details of his profession.

I was once introduced to a man who was described to me as one of the most thorough engineers of his time. I asked "Why" and the answer I received was that he could go out and make his own bricks. That man afterwards became a Chief Engineer in new Delhi. I would say to you all, therefore, "*Be Thorough And Strive For Efficiency*", and the vast amount of important and interesting work that awaits you in this country will enable you to place your profession in the forefront of those doing service for India.

Appendix C.

List of Delegates that Attended the Ninth All-India Veterinary Conference, Bombay, 1936.

<i>Bombay Presidency :—</i>		26. P. V. Nagarsheth, G.B.V.C., (Retd.)
Messrs :—		27. R. B. Phadnis, "
1. V. R. Phadke, G.B.V.C., J.P.		28. E. R. Kulkarni, "
2. Khan Saheb N. D. Dhakmar- vala, G.B.V.C.		29. S. N. Nibalkar, "
3. M. Mohey Deen, M.R.C.V.S.		30. Y. K. Sehte, "
4. Abdul Hamid Khan, G.B.V.C.,		31. S. V. Phadnis, G.B.V.C.,
5. J. P. Damri, "		32. P. N. Mane, "
6. Y. N. Marathe, "		33. S. S. Patkar, "
7. R. N. Naik, "		34. T. G. Desai, "
8. D. S. Laud, G.B.V.C., F.Z.S., F. R. H. S.		35. S. G. Shurpali, "
9. K. R. S. Aiyar, G.B.V.C.,		36. N. G. Kulkarni, "
10. M. K. Garudachar, "		37. K. H. Maniar, "
11. Khan Saheb D. F. Dubash.		38. Y. S. Wakankar, "
12. A. G. Khair, G.B.V.C.,		39. S. B. Shimpi, "
13. J. P. Pereira, "		40. C. S. Phadnis, "
14. P. B. Cardmaster, "		41. G. D. Bhagwat, "
15. P. G. Date, "		42. V. K. Chatuphale, "
16. V. N. Kulkarni, "		43. T. R. Khaladkar, "
17. H. B. Shirsathe, "		44. P. C. Bapat, "
18. R. G. Sathe, "		45. G. K. Khasgiwale, "
19. K. B. Nair, G. B. V. C., V. S., B. V. Sc.		46. K. S. Shinde, "
20. P. Miranda, G.B.V.C. (Retd.)		47. N. B. Kotbagi, "
21. S. J. Khambete, G.B.V.C.,		48. G. S. Balekundri, "
22. C. N. Desai, "		49. S. V. Deshpande, "
23. J. C. Batliwala, "		50. M. R. Tagare, "
24. M. G. Kulkarni, "		51. Y. V. Limaye, "
25. B. B. Joshi, "		52. N. K. Barshikar, "
		53. M. Kirtaine, "
		54. M. Ghulam Muhamed, G.M. V.C.,
		55. R. L. Jagaonkar, G.B.V.C.,

56. Doshi,	G.B.V.C.,	93. J. J. Vyas,	G.B.V.C.,
57. S. I. Vyas,	"	94. Md. Jasimuddin,	"
58. C. S. Balakrishnan,	G.M.V.C.	95. S. V. Modak,	"
59. S. J. Vyas,	G.B.V.C.	96. R. N. Sane,	"
60. M. K. Jhavery,	"	97. P. S. Hegade,	"
61. K. B. Trivadi,	"	98. M. H. Bhat,	"
62. M. D. Vaishnav,	"	99. C. W. Fernandez,	"
63. N. T. Mehta,	"	100. D. M. Gadkari,	"
64. M. H. Nagamia,	"	101. K. V. Barde,	"
65. R. M. Kalapesi,	"	102. A. A. Dave,	"
66. R. C. Nathani,	"	103. A. B. Agate,	"
67. H. C. Desai,	"	104. N. V. Tahmankar,	"
68. K. Kandade,	"	105. V. S. Solvin,	"
69. P. V. Akula,	"	106. S. N. R. Ranina,	G.B.V.C.,
70. G. T. Shah,	"		(Retd.)
71. A. C. Patel,	"	107. Akula, G. B. V. C.	
72. R. G. Pandya,	"		(Pri. Practitioner. Bombay).
73. G. S. Patankar,	"	108. P. D. Lall (Gulbarga).	
74. P. G. Joshi,	"	109. Naik, (S.P.C.A., Bombay).	
75. D. H. Venkankar,	"	110. H. H. Uttanwalla, G.B.V.C.	
76. B. A. Derorukhar,	"		<i>Madras Presidency :-</i>
77. D. B. Khole,	"	1. M. S. Sastry, G.B.V.C.	
78. S. N. Sapre,	"	2. M. Anant Narayan Rao,	G.M.V.C.
79. J. H. Unerkar,	"	3. K. S. Nair, G.B.V.C.,	
80. N. B. Gupte,	"		M.R.C.V.S.
81. H. A. Chafekar,	"	4. P. A. Parthasarathy,	G.M.V.C.,
	(Retd.)		
82. S. B. Hanchilikar,	"	5. J. D. David,	"
83. D. C. Bhambure,	"	6. B. V. Seshadhri, G. B. V. C.	
84. G. C. Kale,	"	7. P. V. Ramaswamy Iyer,	G.M.V.C.
85. D. B. Sapre,	"		
86. M. N. Ronge,	"	8. C. Sri Ramulu,	"
87. G. R. Pathak,	"	9. H. R. Rangaswamy,	"
88. J. Z. Kalal,	"	10. J. E. D. Sigamony,	"
89. D. R. Marathe,	"	11. K. S. Prakasa Rao,	"
90. L. G. Amone,	"	12. T. M. G. Konar,	"
91. M. B. Kotbagi,	"	13. O. Lakshmana Rao,	"
92. N. I. Chopda,	"	14. Pathan Shah Alam Khan,	G.M.V.C.

Central Provinces :—

Messrs:—

1. K. S. Prakash, G.B.V.C.
2. G. G. Oka, G.B.V.C., I D.D.
3. N. S. Pathak, G.B.V.C.
4. Md. Jasimuddin, "
5. B. N. Swamy, "
6. Kelkar, "
7. V. K. Vairagker, G.B.V.C.
(Retd.)
8. N. S. Jawde, G.B.V.C.
9. N. M. Deshpande, "
10. Hari Anant, (Retd.) "

Mysore State :—

1. K. Krishna Iyengar,
G.B.V.C.
2. S. D. Achar, "
3. N. R. Srinivasa Iyengar,
G.B.V.C.
4. M. R. Chengeri, "
5. N. Krishnamurti, "
6. K. Srikantaiah, "
7. S. Parthasarathy, G.M.V.C.
8. A. H. Khan, C.B.V.C.
9. R. D. S. Iyengar, "

Baroda State :—

1. W. V. Soman, G.B.V.C.
2. Sunderlal B. Pandya, "
3. S. N. V. Iyengar, "
4. S. G. Desai, "
5. S. H. Bapat, "
6. R. V. Date, "
7. M. G. Paluskar, "
8. D. K. Desai, "
9. A. M. Mehta, "

Hyderabad :—

1. Mahmud Aziz Hasan,
G.B.V.C.
2. Narasingh Pershad, G.B.V.C.
3. V. S. Rama Rao, "
4. T. L. Mahadeva Rao, "
5. N. D. Dasan, "
6. B. V. Kulkarni, "
7. M. K. Ali, "

United Provinces :—

1. Ram Swarup Singh,
G.P.V.C.
2. Abdul Aziz Sahib,
3. T. S. Sastry, G.B.V.C.
4. U. D. Ragunatha Rao, "
5. A. A. Natesan, "

Punjab :—

Prof. Karam, Ellahie, G.P.V.C.

N. W. F. Province :—

1. Md. Shafi, L. V. P.
2. Shah Mohd. Khan, L. V. P.

Kolhapur State :—

1. H. N. Ghatge, G.B.V.C.
2. B. H. Nirokhekar, G.B.V.C.

Sangli State :—

N. T. Kulkarni, G.B.V.C.

Bansda State :—

H. N. Atodaria, G.B.V.C.

Pudukottah State :—

N. Kuppuswamy Sarma,
G.M.V.C.

Dewas State Senior :—

S. S. Bhonslae, G.B.V.C.

Morvi State :—

K. S. Jadeja, G. B. V. C.

Bhavanagar State :—

G. N. Mehta, G. B. V. C.

*Kashmir State :—*Prem Nath Kak, L.V.P. (Hons),
Kashmir Army.*Indore State :—*

1. V. V. Nighojkar, G.B.V.C.
2. J. B. Joshi, „

Cochin State :—

T. V. Menon, G.M.V.C.

Jodhpur State :—

C. J. Fernandez, G.B.V.C. I.D.D.

Gwalior :—

Capt. M. S. Apte, G.B.V.C.

Federated Malay States :—

Shanta, G.B.V.C.

Zanzibar :—

S. M. Khan,

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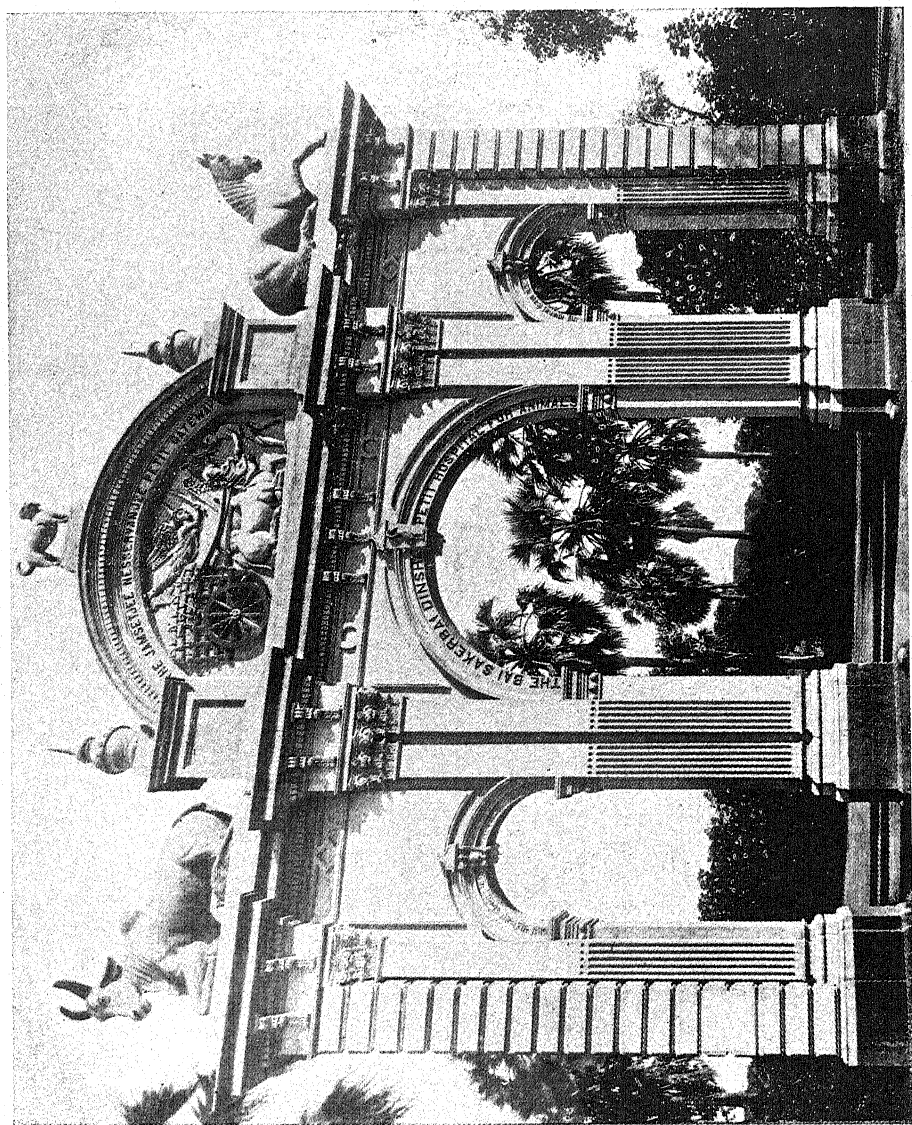
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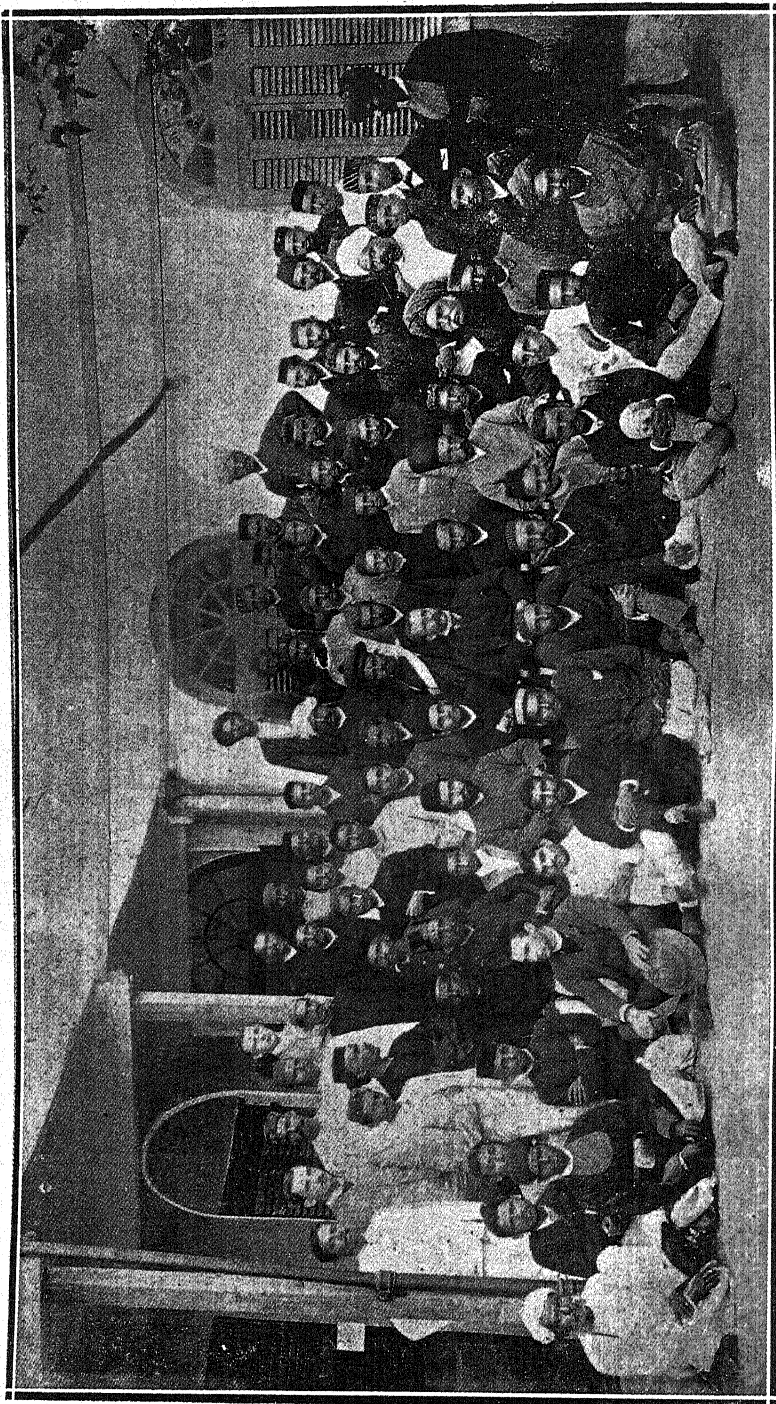
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College staff and students 1886—87.

The Bombay Veterinary College Golden Jubilee, 1936.

PROCEEDINGS.

Wednesday, the 30th December, 1936.

At 8-30 in the morning, the finals in the sports in connection with the Golden Jubilee Celebration of the College were conducted and prizes were distributed to the winners by Mrs. Phadke.

His Excellency Lord Brabourne, the Governor of Bombay who graced the function of the Jubilee Celebration, arrived punctually at 4-30 P. M., and was received at the Hospital portico by Mr. E. S. Farbrother, M.R.C.V.S., I.V.S., Director of Veterinary Services, Bombay. Principal, V. R. Phadke and Khan Saheb N. D. Dhakmarvala, Chairman of the Jubilee Reception Committee were then introduced to His Excellency by the Director. The Principal introduced the College Staff and Khan Saheb Dhakmarvala introduced the members of the Reception Committee to His Excellency.

A group photo of the Reception Committee with His Excellency the Governor in the centre was taken next. The Director, the Principal and the Chairman of the Committee then conducted His Excellency the Governor round the various parts of the Hospital and the College and showed him the various interesting items.

His Excellency was then conducted to the *dais* in the tastefully decorated lawn in the New College Premises, where a large number of graduates of the College from all parts of the country and many visitors had assembled for the occasion. A beautifully printed and well-got-up Jubilee Souvenir of the College was distributed to all. A copy of the Souvenir bound in Silver and Gold was presented to His Excellency.

Khan Saheb N. D. Dhakmarvala then delivered his address welcoming His Excellency the Governor and the guests. *Appendix D.*

Next Mr. E. S. Farbrother delivered his speech describing the various activities of the Department since its inception in the presidency. *Appendix E.*

His Excellency the Governor then addressing the gathering said :—

Mr. Farbrother, Ladies and Gentlemen,

“I greatly appreciate the way in which you have welcomed me to your Golden Jubilee Celebration, and I have listened with great interest to the account of the history of the Bombay Veterinary College given by the Director and by Khan Saheb Dhakmarvala.

The Veterinary Department is one that has suffered considerably owing to the lack of funds which the financial difficulties of the last few years have brought about, and no part of it has suffered more than the College. In consequence, the College no longer occupies the leading position in India which it once did. I do not think that you should be discouraged by this result, which is due to no fault of those in charge. If the financial position has not greatly improved, at any rate the importance of the Department is being more clearly recognised. His Excellency the Viceroy by the strong personal interest he has shown in Animal Husbandry, has contributed in no small measure to the public appreciation of its importance. This should, in course of time, lead to the voting of larger funds for the purpose.

The Director has pointed out the great advance made in recent years in methods of prevention, particularly in vaccination. It is a truism that prevention is better than cure and it has the advantages of being much easier and cheaper, besides effecting an enormous saving of loss. This College teaches the Veterinary Officers and they teach the owners of animals and in this way healthier conditions of animal life are being brought about.

The best proof of the interest being taken in Veterinary matters is given by the Director's mention of the names of philanthropic

donors who have provided, or helped to provide, buildings for Veterinary Institutions and by the extension of the prevention of cruelty to animals movement. Animals have always been held in high regard in India, but the growth of a more instructed and scientific attitude towards their management and treatment is greatly needed, and this College is the right source of instruction.

Unfortunately, owing to the present year's bad monsoon it will not be possible to carry out the proposals mentioned by the Director for opening 20 additional dispensaries and employing the requisite extra staff. These are the most urgent needs of the Department but they will have to await a more favourable year. Meanwhile let me exhort you to carry on with the present establishment and make the best of your existing dispensaries. I hope the College will go on training men to the best of their ability so that when it becomes possible to employ a larger staff there will be no lack of thoroughly competent Veterinarians to fill the vacant places. I do not think that there is any doubt that, provided the professional standard is high, there will, before long, come a demand from local bodies and even from private institutions for the services of men whose training will be to their employers an insurance against so much loss from death and disease.

I hope that your Golden Jubilee Year, which marks the passing of so many years of good work by this College, may also prove to have been the beginning of a period of greater usefulness and even more successful accomplishment in the work carried on by you, which is of both economic and humanitarian value in this great agricultural country."

His Excellency was then presented with a beautifully made garland of flowers by Miss Diana K. Bamboat, grand daughter of Khan Saheb Dhakmarvala and a bouquet by Miss Susil Phadke.

Khan Saheb N. D. Dhakmarvala one of the first Graduates of the College who served on the College Staff for over 37 years and who is associated very closely with the College all these 50 years, was awarded a Gold Medal by the Golden Jubilee Committee, which also awarded a similar medal to Principal Phadke—the first Indian Graduate of the College—appointed to the post

of Principal. His Excellency the Governor presented these medals amidst great applause. Principal Phadke then proposing the hearty vote of thanks to His Excellency the Governor said :—

Your Excellency, Ladies and Gentlemen,

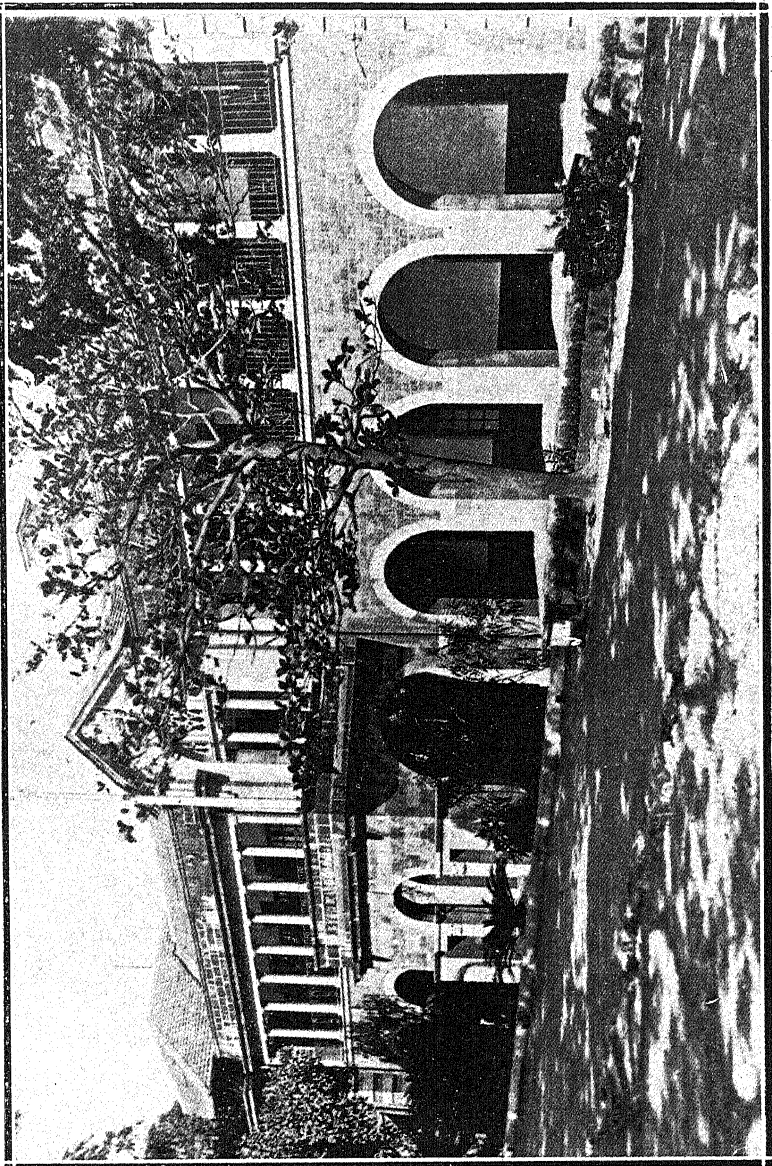
“I have a very pleasant duty to perform and it is to propose a hearty and sincere vote of thanks to Your Excellency for coming amidst us this evening to grace our Golden Jubilee Celebrations.

It is my privilege as Principal of this College and I assure you it is a privilege of which I am proud to convey to your Excellency on behalf of myself, colleagues and the staff and the students, past and present, our deep sense of appreciation and gratitude to your Excellency for having found time to confer this honour on our institution on the occasion of its Golden Jubilee which naturally is an important milestone in the history of the Bombay Veterinary College.

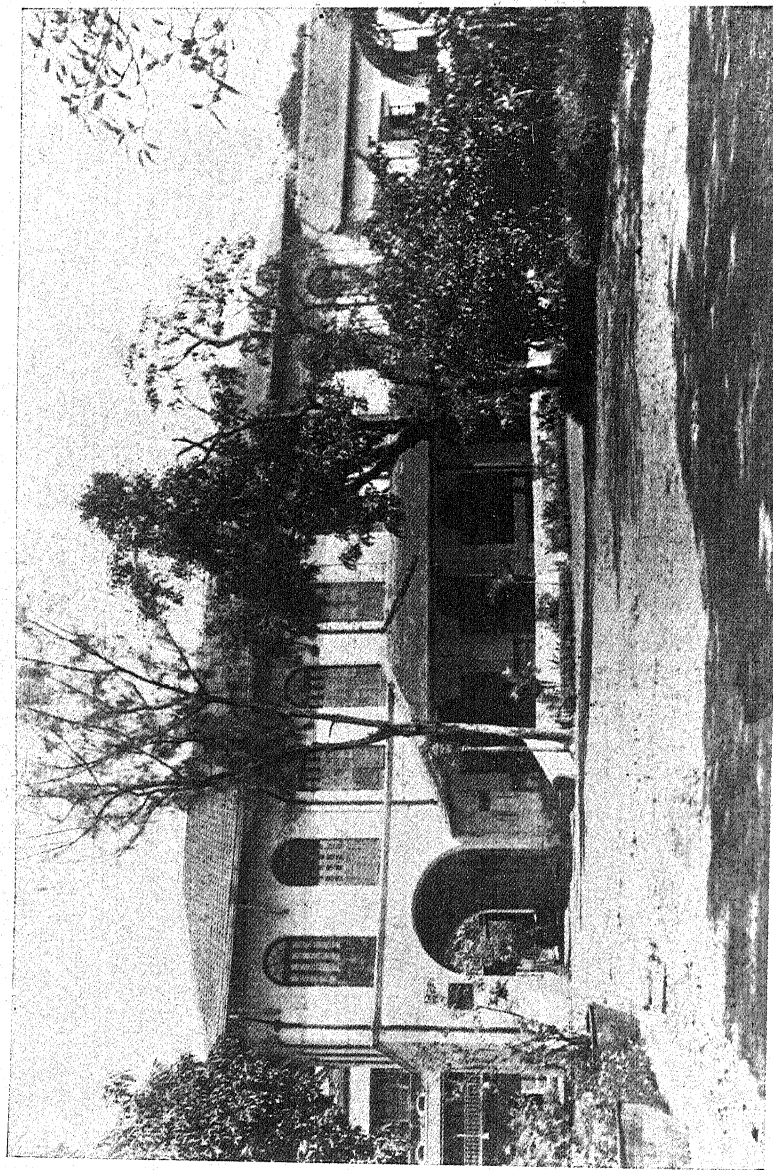
Ladies and Gentlemen, I feel that I will have done my duty inadequately if I do not extend my gratitude to my fellow graduates here present for their loyalty and devotion to their *Alma Mater* and for their ready co-operation when occasions have demanded it. I do so most heartily and devoutly hope that this will ever continue in their much cherished devotion to this College.

Speaking for myself alone, Ladies and Gentlemen, I am deeply conscious of and profoundly grateful for the appreciative references made to me as the first Indian Principal of the College. The mantle of greater men of the past has fallen on my shoulders and it has always been my endeavour during the last four years and more to live up to the fine reputation earned by my predecessors in office for themselves. But more than this I feel glad to find that my own College has been honoured through the medium of my humble self because in its present Principal it has an old student and graduate of this very institution.

I shall always cherish in my living memory the Gold Medal presented to me this evening by the Committee in appreciation of what little I have been able to do in the discharge of my duties. It will in time to come, I assure you, be a very precious heirloom.



New College Building 1908.



Old College Building 1886.


It gives me great pleasure to announce that Mr. Manekji Dinshaw Petit, brother of the present Sir Dinshaw Petit, has endowed Rs. 2000/- towards the founding of a Gold Medal in commemoration of the College Golden Jubilee. We are very grateful to him for this prompt and handsome donation.

I do not wish by a lengthy speech to confirm as it were the belief, however mistaken, that a vote of thanks is a mere formality. This evening at any rate it is intended to be an epitome of sincerity. In public speaking I am told the best possible method is to stand up, speak up, and last but not least to sit down. I have stood up, I have tried to speak but before I sit down, I must request you to carry this vote of thanks or rather the thanks with acclamation."

His Excellency the Governor and visitors were then entertained to an enjoyable *Garden Party*, where the catering was done on a lavish scale, both in the vegetarian and nonvegetarian style. A band was in attendance all the while playing melodious tunes.

His Excellency the Governor, the guests and the gathering dispersed after an enjoyable and happy function.

In the night, the College Students' Dramatic Association staged a drama in the local vernacular on "Rinderpest" specially prepared for the occasion. "Mock Doctor" in English was also staged. An excellent performance on the flute was given by Mr. Palhad Hombal to the great appreciation of the audience. "Doctor Puff" a comic scene was enacted by Mr. Khambate B. Ag., a student of the College. Drama on "Rinderpest" written for the propaganda will surely serve the purpose well. Mr. Garudachar who has been responsible for these entertainments was awarded a Gold Medal on the occasion. Medals were also awarded to the several actors in appreciation of their performance. The gathering then dispersed after a successful celebration of the Golden Jubilee the of oldest Veterinary College in the country. The towers, all the buildings and the whole of the College premises were beautifully illuminated with brilliant multi-coloured lights the whole night.



On 31st December 1936, (Thursday) a group photo of the staff, past and present students of the College was taken in the morning.

The staff, past students and the volunteers were all entertained to an enjoyable *Jubilee Dinner* in the Delegates' Camp at 11-A. M. In proposing the toast of the College, Khan Saheb Dhakmarvala said:—

Gentlemen,

"I consider it a great privilege to give you the toast of our College and I am sure all of you will join with me in wishing the College a happy 51st birthday and many happy returns of the day.

You are aware that the circumstances which have brought us together to-day are unique. To mark the Golden Jubilee event several old boys—some of them now fathers and even grand-fathers—have attended the function from all over India and elsewhere. We have celebrated the occasion amongst great rejoicings and end it to-day with this Jubilee Lunch.

I do not wish to spoil your digestion by a long after-dinner speech.

In the first place we thank Providence for His honour in allowing us to finish this function well and successfully.

While tendering the College birthday greetings we are content to know that its roots are properly placed and their fruits will continue to be given as usual to the public.

Our College has produced many veterinary surgeons who have established a name in the profession. We are proud of them and their work. Besides, I must express my appreciation of the great spirit of enthusiasm shown by all in connection with to-day's function. In the name of the College I have therefore to tender our thanks to all who have honoured us by their presence to-day.

As counted in terms of human years the College has attained its maturity. It is the custom that when a man becomes fifty years of age, he receives congratulations. But as age advances his body

becomes weak year by year and he loses the pleasures of life. But with regard to the College it cannot be said thus, on the contrary, with the advancement of years, not only has it kept up its strength and grown robust, but it has gone on adding to it and will continue to live long for many centuries. From a humble beginning it has worked its way up to a position of great influence in Veterinary work and has deservedly won the esteem of all. It continues to hold a proud place in the hearts of its graduates. The history of the College is in fact the history of Veterinary Medicine in the Bombay Presidency and until to-day it stands as a noble monument of fifty years of steady and devoted service in the interest of animal humanity. Although to-day's function cannot be written in gold letters, I can say that the result of what is accomplished during these fifty years should serve as a stimulus and impetus to greater organisation and renewed efforts in the years to follow. To those who have worked for the College, recompence comes in the discharge of their duties.

I can claim to have played some part in the development of the college because I had given the best years of my life in its service and thus have done a bit in furthering its advancement. It is one of the memories of my life on which I took back with great satisfaction and pride and express my gratitude to the many Principals and Professors who have made and are making it possible what has been accomplished.

I believe in the great importance of personal contact between teachers and students and I can say from my personal experience that one of the distinctive features of this College, from its very beginning, has been the happy and cordial relationship that has always existed between the staff and the students.

I am deeply sensible of the fact of my having been chosen to be the Chairman of the Reception Committee on this historic and memorable occasion. I form a link between the old and the new and on an occasion like this I advise you to forget all differences and remember the past with pride.

It is a privilege to me to be able thus to fulfil an old dream of returning to the College my gratitude for all the favours and

honours which were given to me in the past. I should like to add how greatly pleased I am to see the success of to-day's function and I wish to convey my deep appreciation to the members of the Committee and to all concerned for this happy termination. It is always a pleasure to take part in the celebration of a successful undertaking and this pleasure is increased to-day by the fact that the celebrations mark the Golden Jubilee of the College. Thanks to Mr. Sathe who has looked after the guests.

I trust that all of you will carry pleasant memories of your presence in Bombay during the celebrations of this function.

In giving you the toast of the College, I couple with it the name of the Principal Mr. Phadke. We know how he has deservedly occupied the post for the last four years and has been successfully fulfilling the duties of his high post. It is a matter of regret that owing to age limit he will have to retire next October, after nearly twenty-eight years of connection with the College in different capacities, not the least of which was the Principalship at the end of his career. We will be very sorry to part with him and the College will lose his able guidance. He had endeared himself to all students and the staff. We will wish him a long life of happiness after retirement amongst the members of his family—of course when the time of his retirement comes. I am sure the students and staff will give him a good send off and pay him due tribute for the great services rendered by him to the College and the Profession. As I enjoy the great privilege of being able to speak of him with intimate personal knowledge I cannot allow this opportunity to pass without expressing my personal regret at his retirement. We wish that he may be appointed to act as the Director of Veterinary Services in the Presidency when the present Director goes on leave next year. It will be a befitting honour at the end of his service.

I do not wish to encroach on your time, and therefore allow me to voice the wishes uppermost in our minds to-day *viz.*, that of continued happiness and prosperity of the college.

Gentlemen, I give you the toast of the College.

Principal Phadke in replying to the toast expressed his gratification at the success which had attended the Jubilee Celebrations

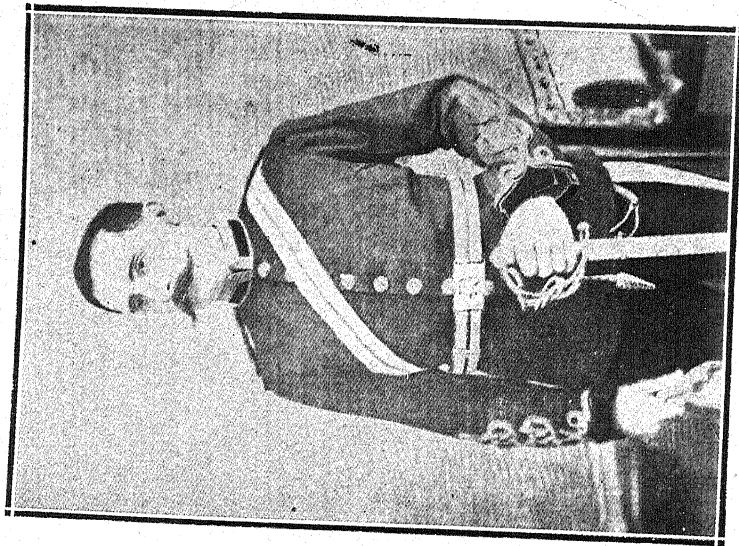


Professor J. H. Steel, B. Sc., F. R. C. V. S.,
F. Z. S., J. P.

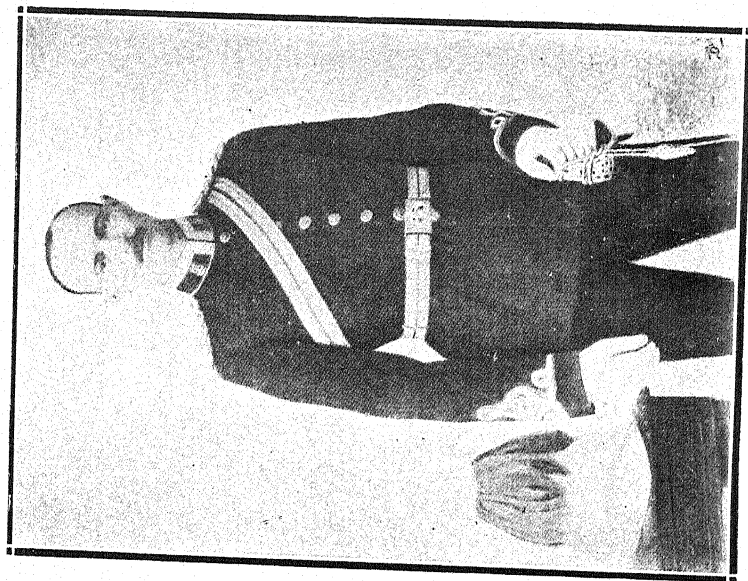
FIRST PRINCIPAL.



Col. J. H. B. Hallen, F. R. C. V. S.,
First Inspector General, I. C. V. D.



Lt. Col. J. Brodie-Mills, M. R. C. V. S., J. P.
PRINCIPAL.



Major F. Joslen, F. R. C. V. S.
PRINCIPAL.

of the College and stated that this day would be a memorable day in the history of the College and of the profession in India.

N. D. DHAKMARVALA

Chairman,

*Bombay Veterinary College, Golden
Jubilee Celebration Committee.*

BOMBAY, }
31—12—36. }

Appendix D.

WELCOME SPEECH

BY

Khan Saheb N. D. DHAKMARVALA,

Chairman,

Bombay Veterinary College Golden Jubilee Celebration Committee.

Your Excellency, Ladies and Gentlemen,

As Chairman of the Bombay Veterinary College Golden Jubilee Celebration Committee, on behalf of the staff and past and present students of the college, I desire to extend a very warm welcome to all our guests. I would, in particular, thank Your Excellency for consenting to be with us to-day. We consider ourselves fortunate indeed that in the midst of your many duties you have found it possible to visit our College on this particular occasion.

Your presence is a great source of encouragement to all those connected with the college because those who direct veterinary educational policy, those who instruct and those who are instructed, look constantly to the authorities and the public alike for support.

Many of my fellow graduates have travelled long distances to be with us to-day and we hope that they have been comfortable during their stay here and will carry away with them pleasant recollections of this occasion. To those who have been unable to come but have sent us messages of congratulations and good wishes, we extend our thanks.

The College Golden Jubilee fell on August 2nd of this year, but owing to the death of our late beloved King Emperor it was not possible to celebrate it then. The postponement of the functions until December was then decided on to enable our fellow graduates to obtain leave for the occasion.

To no one here to-day can this function afford greater pleasure than to myself because I have, in the role of student, teacher and for short periods as Acting Principal, been connected with its working for 40 years, that is to say from the day it was first opened until I retired 10 years ago. It is but natural therefore that to-day I should look backwards and I should like to relate to you personally all that has happened in those years. To do so, of course, would take up too much of your time, but perhaps you will permit me to mention a few of the more important features.

It was in the year 1883, that the proposal to establish a Veterinary College in this city was first considered by Government of Bombay and the College materialised in 1886. The starting of the College was facilitated by the co-operation of the Society for the Prevention of Cruelty to Animals in placing the Bai Sakarbai Veterinary Hospital at the disposal of the College Authorities for the imparting of clinical instruction. The hospital had been opened in the year 1884 through the generosity of that great Parsi philanthropist, Sir D. M. Petit, first Baronet. In return, the college officers undertook the treatment of the patients attending the hospital and from then onwards, the two institutions have continued to work together in supplementing the veterinary resources available in the city, and training graduates to extend those resources to the mofussil.

The success of a College such as this largely depends on those who control it, especially in its early years. Our first Principal was the late Professor J. H. Steel. By his able guidance and indefatigable zeal, the college in its infancy was able to perform its functions in a very efficient manner. He put his whole heart into his work and did not content himself with teaching and ministering to the care of sick animals only. He was interested in the work of the Bombay Natural History and Anthropological Society; he

founded the Bombay Veterinary Medical Association and edited a quarterly Veterinary Journal. He wrote text books on the Anatomy and on the diseases of the ox, sheep, dog and elephant and also several pamphlets on the contagious diseases of animals which, when translated into the vernaculars, were distributed to the ryots. He continued to work hard even when his health was failing and it was a great loss to the College when he died in 1891, at the early age of 37.

Professor Steel was succeeded by Colonel J. B. Mills who was Principal for 15 years. During this period he was responsible for the formation of the Glanders and Farcy Department and his sound advice was greatly instrumental in further developing the institution. He died three years ago in England. He was succeeded in 1906, by Major F. Joslen who continued to hold the post of Principal for 4 years. It was during his time that the new college building was opened. Mr. K. Hewlett, Colonel Joslen's successor served at the college for 22 years and it will be no exaggeration to say that during his period the college passed through very difficult times, not the least of which were the period of the great war, throughout which, in addition to his own duties, he acted as Veterinary Embarkation Officer in Bombay, and the subsequent years of financial stringency. Mr. Hewlett retired in 1932 and is now living in Somerset and we all sincerely hope that he will be given many years in which to enjoy his well earned rest.

In 1932, Mr. Hewlett was succeeded by the present Principal, Mr. V. R. Phadke. Mr. Phadke's appointment is unique in that he is the first graduate of the college to earn that distinction. The college is proud that one of her sons has been selected for that high post and we appreciate the honour that has been conferred upon him by Government and which he so richly deserves.

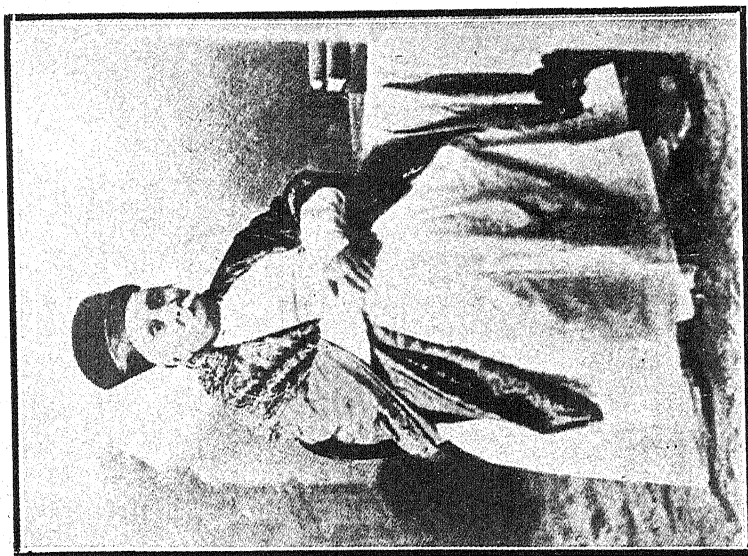
Prior to 1932, the College was an independant institution but in that year, with the creation of a Veterinary Directorate the college was brought under the control of the present Director, Mr. E. S. Farbrother. This makes a close co-operation between the College and the district staff as is indicated by the opening last year of a rinderpest vaccine depot at the college from which 3,08,347 doses of vaccine have been issued for use in the districts.

It will thus be seen that the college has been fortunate in those who control its destinies. It is, of course, a Government Institution and the liberal grants contributed by Government for its maintenance are the most important factors that have contributed to its success. The annual expenditure on the college at the beginning of its existence was Rs. 20,000/-. It rose to Rs. 1,25,000/- in 1925, and is now Rs. 63,000/-. We could have wished that the Golden Jubilee could have coincided with a more prosperous period of time and one cannot help recalling moments of deep anxiety when the Reorganisation Committee appointed by Government in 1932, recommended the closing of the College as a measure of retrenchment. We are thankful to Government that this recommendation was not accepted.

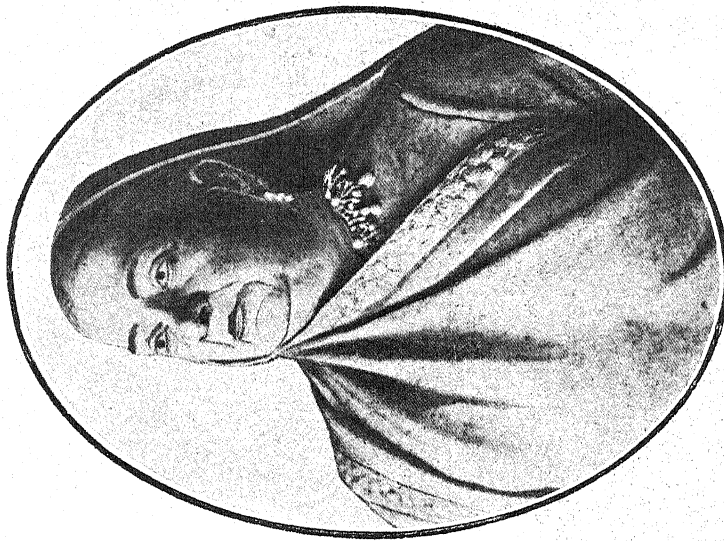
During the past 50 years, 759 graduates have passed through the portals of the College. These graduates have spread to all parts of India and beyond. They are to be found in Ceylon, the Federated Malay States, East Africa, Zanzibar, Aden and as far away as Brazil. The reputation of the college has therefore been achieved, not only by age, but by the useful activities of her graduates in all parts of the East in ameliorating the condition of dumb animals.

We must not, however, allow our past successful progress to cause us to relax our efforts for the future. Since the first batch of graduates passed out of the college in 1889, Veterinary science has made great progress but of late years the college has not been keeping pace with that progress, as greater progress has been made by similar institutions in other parts of India. Unfortunately financial stringency has not permitted us to go forward in the same way but we hope and trust that as finances improve early consideration will be given to this matter, one which is of the utmost importance to the rural population of India.

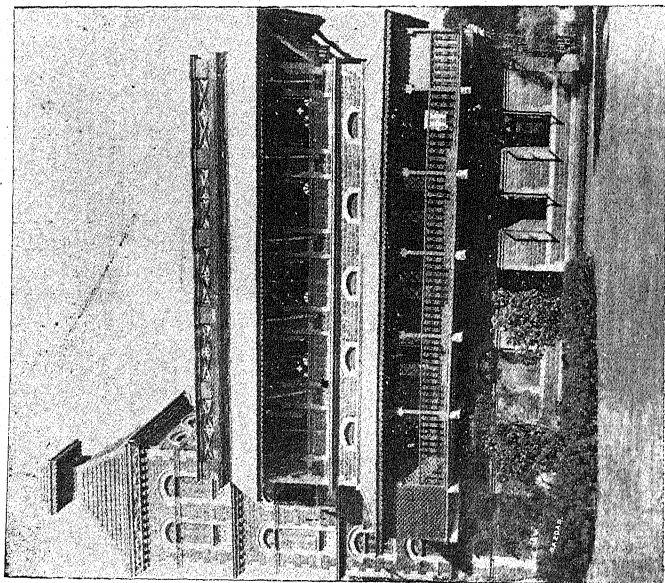
Notwithstanding the present position we may legitimately claim that the object with which the College was opened in the early "Eighties" *viz.*, that of spreading veterinary education in India has been achieved, partly by the direct action of the College in turning out trained graduates and partly by the example set and followed by other Provinces in opening more Veteriniary Colleges.



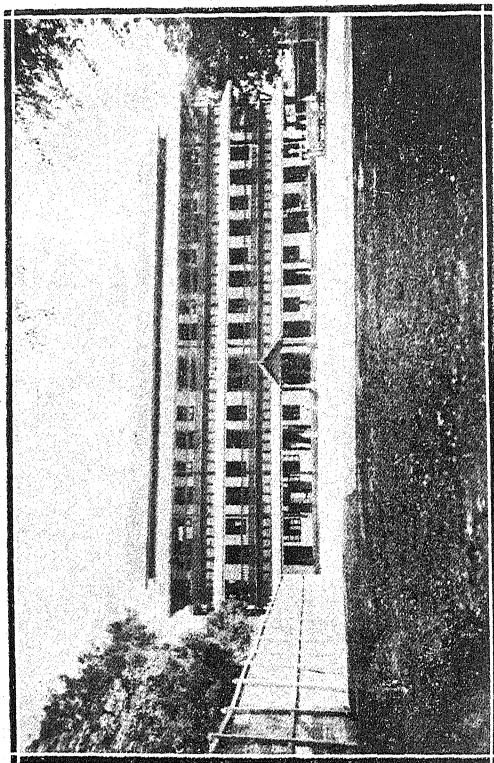
Sir Dinshaw M. Petit, 1st Bart.



Lady Sakarbai D. Petit.



Sir D. M. Petit Patho-Bacteriological
Laboratory 1891.



Students' Hostel 1908.

It is a matter of satisfaction that the old boys of the college continue to maintain their affection for their Alma Mater. The celebrations culminating in to-day's functions are a mark of that abiding love and remembrance in which the College is held by us all and we hope and pray that it may continue to be blessed with many years of usefulness.

In recent years India has demanded with increasing insistence that research into problems affecting the health of animals should keep pace with medical research. Research is a big subject and an expensive one. The Government of India has established a Veterinary Research Institute on a large scale at Muktesar in the United Provinces with a branch at Izatnagar near Bareilly and further expansion of that institute is probable in the near future. The Veterinary Colleges are also doing something in this direction but the field is so vast that only the fringe can be touched at present. Co-operation could be extended to this important subject by private philanthropists by the endowment of research scholarships thus enabling experienced scientific workers to devote their time to problems that would be of real benefit to India. India has gained much from veterinary institutions and each year brings some new discovery.

Before concluding I wish to say how grateful I am to the members of the Reception Committee for the trouble they have taken in making all necessary arrangements for the success of the Jubilee function. The main burden has fallen on the Secretaries Messrs P. B. Cardmaster, K. R. S. Aiyar and P. G. Date and the Treasurer Mr. D. S. Laud. We all owe them our thanks for their arduous work.

In conclusion, I would once again thank Your Excellency for joining us here to-day. Your interest in all that affects the welfare of this Presidency is well known to all of us and your presence among us to-day is a further expression of that interest and is also a source of pride and encouragement to all concerned with this College.

Appendix E.**SPEECH OF****Mr. E. S. FARBROTHER, I. V. S.***Director of Veterinary Services, Bombay Presidency.*

Your Excellency, Ladies and Gentlemen,

I am afraid that I cannot lay claim to such a long and close connection with the college as can Khan Saheb Dhakmarvala, since it is only twenty three years ago that I received my first introduction to it when, shortly after my arrival in India, I was sent from Poona to officiate as a member of the Board of Examiners appointed to conduct the annual examinations in 1918. I have served in the same capacity for many years since but it is only since 1932 that my connection with the college has been really close. I am therefore perhaps not so well qualified to speak on this occasion as are many others present.

When one considers the vast importance to India of its livestock and the great waves of disease which have for ages past decimated our herds and flocks, the value of sound veterinary education and of an efficient veterinary service is apparent. When this college was opened in 1886, the standard of education which it offered was a fairly high one and we are told that it was the ambition of its first Principal to raise the standard until it reached that demanded by the Royal College of Veterinary Surgeons in London. Unfortunately that ambition has not been realised and while in other countries the education of the Veterinary Surgeon has been steadily advancing, in Bombay no radical change has taken place for many years past. In saying this I am casting no reflection on the past and present officers of the college. They have done, and are doing what is a possible under the circumstances but they cannot build well without sufficient bricks and mortar. The great need of restricting expenditure in recent years has prevented the introduction of improvements with the result that the Bombay Veterinary College, the oldest institution of its kind in India, has lost its premier position and we trust that Your Excellency's Government will help us to retrieve it as soon as possible. There is a growing

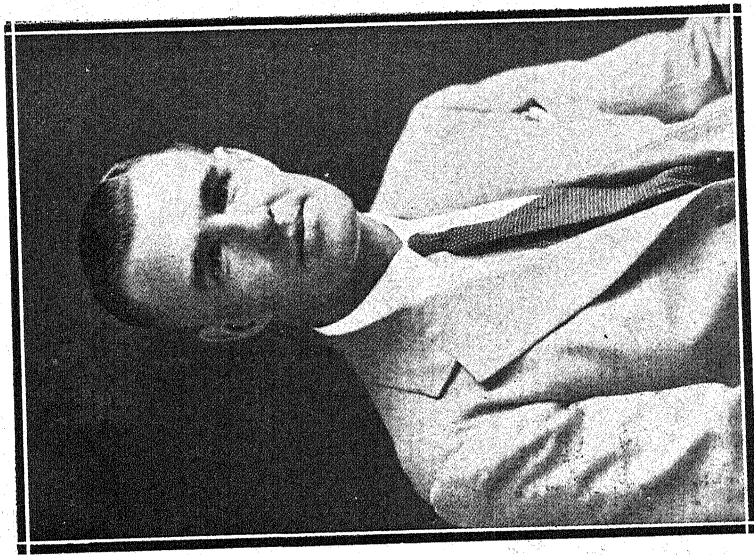
demand in India for improved veterinary education and there is no reason why we cannot provide it instead of having to send our boys abroad to acquire it.

I have been asked to tell you this evening something of the activities of the Civil Veterinary Department. It was as far back as 1882, that the question of creating a Civil Veterinary Department in India was first mooted, but it was some years later that the services of a number of officers from the Army Veterinary Corps were transferred to the Civil Administration to form the nucleus of the Department. District Local Boards were also encouraged to provide facilities for the treatment of animals as Veterinary Graduates became available. It soon became evident however that if any serious effort was to be made to control the heavy losses among cattle from contagious diseases it was necessary to place at the disposal of the Superintendent a body of men subject to his sole control, and at the same time to continue to afford facilities for the treatment of sick animals. The scheme that commended itself to the Local Government and which was launched in 1909, was one by which the District Local Board Veterinary staffs were transferred to form a Provincial Veterinary Service under the control of the Superintendent, paid entirely by Government, but loaned to Local Bodies to manage their Veterinary Institutions. Thus were two birds killed with one stone for it then became possible to concentrate a body of men in any area where disease was threatening and at the same time the hospitals and dispensaries were not denuded of their professional staff. It is intended to provide one Veterinary Officer and one dispensary in each taluka of the Presidency with a suitable supervising staff. We are still some way from reaching that objective yet but there are at present 112 state-aided hospitals and dispensaries in the Presidency and a sanctioned subordinate staff of 130, but the supervising staff is still woefully small. There is however a popular demand for greater veterinary assistance from all parts of the Presidency and proposals are now before Government for opening 20 additional dispensaries and the employment of the requisite additional staff during the current and next financial years. The entertainment of such a large subordinate staff however, requires a comparative superior staff to supervise, co-ordinate and control its activities and it is hoped that due consideration will be given to this necessity.

Our work falls mainly under three heads, *viz.*, Veterinary education, disease control and the treatment of sick animals. But there are many other calls upon us. We are, for instance, sometimes asked to assist Municipalities in their public health activities by examining animals intended for slaughter for food purposes and to examine the meat after slaughter. Propaganda at fairs and shows and in the villages and the village uplift scheme call for our attention and we are hard put to it at times to satisfy all the demands made upon us with our available resources. When you realise that there are approximately 14 million head of agricultural livestock in the Presidency, not to mention countless small animals and birds—for the humble village fowl is also increasingly demanding our attention now not included in the quinquennial census, that is perhaps not surprising.

Of our educational activities you have been told. Perhaps our most important work is the control of contagious diseases. Outbreaks of Rinderpest, Haemorrhagic Septicaemia, Black Quarter and Anthrax take a heavy toll of our livestock annually, while Foot and Mouth disease, though it is not so fatal, causes considerable economic loss. There are other diseases, more insidious in nature, which are also the cause of heavy losses and thanks to the valuable work of the Imperial Veterinary Research Institute at Muktesar and to that of the Investigation Officers who are now employed in all Provinces and some States under a scheme initiated by the Imperial Council of Agricultural Research, many formerly obscure conditions are now being more thoroughly understood. We are able now to offer protection to animals against many of the more fatal diseases either by the inoculation of preventive sera or vaccination and large numbers of cattle are being protected annually. It has been a long up-hill task converting the livestock owner from his old ideas and the value of modern prophylactic measures and there are still some who still think their old methods are best. Such people are a hindrance to effective control and the introduction of legislation is essential. A "Contagious Diseases of Animals Act" is now under the consideration of the Government of India.

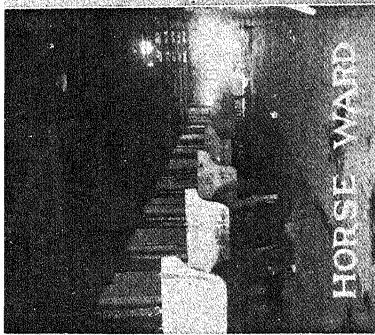
Perhaps one of the most outstanding advances in recent years in the prevention of disease has been the discovery as a result of



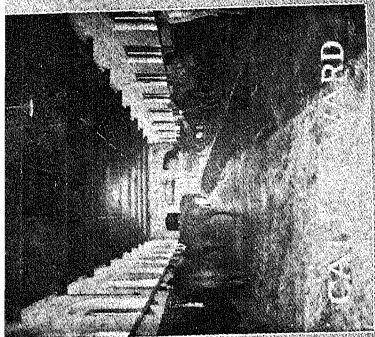
Capt. E. S. Farbrother, M. R. C. V. S.,
Director of Veterinary Services,
Bombay Presidency.



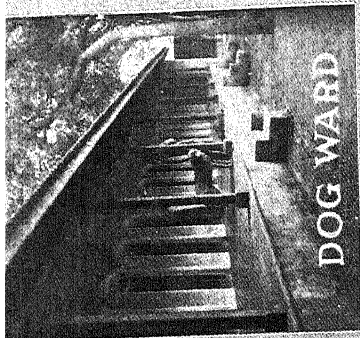
Khan Saheb N. D. Dhakmarvala, G. B. V. C.,
PRESIDENT, ALL-INDIA VETERINARY ASSOCIATION,
Chairman, Reception Committee,
The 9th A. I. V. Conference, 1936.



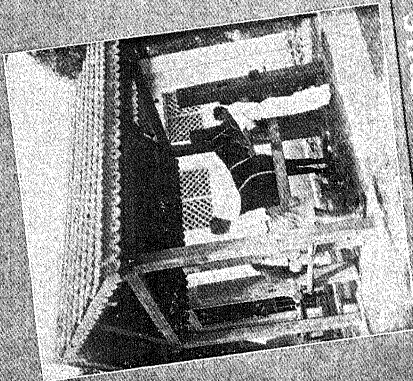
HORSE WARD



CALVING WARD



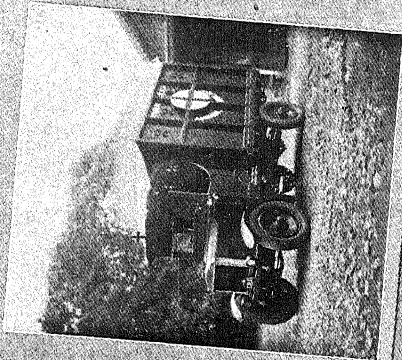
DOG WARD



HORSE TREVIS



AMBULANCE



MOTOR AMBULANCE

BLOCK BY--GAZDAR & SONS.

Views of Interior of College and Hospital.

work at Muktesar of a very effective and cheap means of vaccinating cattle against Rinderpest. This disease claims more victims than any other and its control has been rendered difficult by the lack of a prophylactic agent that would confer a durable immunity and be at the same time simple of use and cheap in production. Such an agent we now have and the disease can be tackled with far greater prospects of success than in the past. It has been recently demonstrated that, given the men, it is possible to cut short a fairly widespread outbreak of rinderpest within a reasonably short time instead of the months it took in the past. That is a very great achievement.

It may be of interest to note that in addition to the facilities made available by Local Bodies for the treatment of sick animals, Societies for the prevention of Cruelty to Animals are also becoming active in this direction. The Bombay Society has of course been doing good work for over half a century and the Nasik Society also opened a Hospital many years ago. In recent years the Poona and Ahmedabad Societies have both opened hospitals and the Poona Society has been fortunate in that, through the generosity of an American lady, it has been able to put on the road a travelling motor dispensary which will visit villages throughout the year. This is an innovation which appears to be appreciated by the public and the progress made will be watched with interest.

I would conclude by paying a tribute to the many philanthropic individuals who have helped in providing the necessary buildings for the veterinary institutions in the Presidency. The late Sir D. M. Petit not only provided us with Laboratory but also contributed largely to the hospital buildings at Nasik maintained by the Society for the Prevention of Cruelty to Animals there. The late Mr. E. Prett of the Indian Civil Service provided buildings for the hospitals at Godhra, Sholapur and Bijapur. The Trustees of the N. M. Wadia charities have placed at the disposal of Government a sum of Rs. 15,000 annually for the provision of suitable buildings and there are many dispensaries named after Mr. Wadia in the Presidency and Sind. Various other contributions have been made from time to time resulting in the provision of buildings at Ahmedabad, Poona, Dakor, Kapadvanj, Haliyal, Kumta, Sirsi,

Bandra, Borsad, Eru, Alibag, Bulsar etc. The fact that such generous assistance has been given, is I think, evidence of the fact that the work of the Department is appreciated by the public who are willing to assist as far as they are able in furthering its aims.

Appendix F.

The Bombay Veterinary College Golden Jubilee Celebration.

Members of the Reception Committee.

Khan Saheb N. D. Dhakmarvala,	„	S. D. Achar.	G.B.V.C.
G.B.V.C., B.V.S. (Retd.)	„	C. J. Fernandez,	„
Mr. V. R. Phadke G.B.V.C., J.P.	„	P. V. Nagarsheth,	„
„ M. Mohey Deen, M.R.C.V.S.	„	B. B. Joshi,	„
„ D. S. Laud, G.B.V.C.,	„	Akula,	„
F.Z.S., F.R.H.S.	„	K. S. Nair, G.B.V.C.	„
„ K. B. Nair, G.B.V.C., V.S.,	„	M.R.C.V.S.	„
B.V.Sc. (Toronto).	„	H. N. Ghatge,	G.B.V.C.
„ R. N. Naik, G.B.V.C.	„	W. V. Soman,	„
„ J. P. Damri,	„	Krishna Murti,	„
„ A. H. Khan,	„	G. K. Khasigwala,	„
„ K. R. S. Aiyar,	„	R. M. Kalapeshi	„
„ M. K. Garudachar,	„	S. N. V. Iyengar,	„
„ D. B. Khole,	„	Doshi,	„
„ Y. N. Marathe,	„	A. G. Khair,	„
„ M. S. Sastry,	„	Gokhale,	„
„ V. N. Kulkarni,	„	R. K. Pathak,	„
„ D. F. Dubash,	„	S. J. Khambete,	„
„ P. B. Cardmaster,	„	M. R. Chengeri,	„
„ J. C. Batliwala,	„	V. S. Rama Rao,	„
„ P. C. Date,	„	H. B. Shirsathe,	„
Capt. M. S. Apte,	„	V. K. Chatuphale,	„
Mr. M. G. Kulkarni, G.B.V.C.	„	K. S. Shinde,	„
„ S. N. R. Ranina,	„	B. B. Sapre	„
„ R. G. Sathe,	„	B. H. Nirokhar	„
„ J. P. Perreira,	„	Y. Narayanaswami	„
„ K. Krishna Iyenger,	„	B. A. Deorukhkar, G.B.V.C.	„

Impressions of the Ninth All-India Veterinary Conference

BY

A DELEGATE.

It was a unique experience of this kind for one to attend such a gathering which consisted of nearly two-hundred Veterinary Surgeons from different Provinces and States from extreme north Kashmir to the southernmost Cochin.

The Conference was a great success under the leadership of Mr. F. Ware, who, as is known to all, is a seniormost Officer in the Indian Veterinary Service. For those who came for the first time to this premier City and Gateway of India, the sight of volunteers bearing very gaudy and bright and eye-catching badges, was a great relief at the railway station alone, being led to the Delegates Camp and given Tea and Dinner coupons so methodically arranged and one really felt quite comfortable and at home.

The papers read and discussions held were of great professional interest and of high standard. Those of the colleagues who could not attend the Conference are urged to go through them when published in *The Indian Veterinary Journal* the only binding link we have and the betterment of which only could solve our professional problems in India.

One of the most vital matters which effects the All-India Veterinary Graduates—products of the different Provincial Veterinary Colleges—was the outstanding *resolution* at the second day's opening Conference.

Mr. Ware, the well-known, tactful and strong man as one should call him, led us well with sympathy in agreeing to the resolution passed unanimously by the Conference for submitting to the Government of India. We eagerly await its desired result.

Mr. Sastry known so well as the General Secretary, was really a busy bee in this beehive of Veterinary Conference. The Associ-

ation owes its very inception and success to its pioneer—Sastry. Having grown old as the General Secretary, Mr. Ware's sympathising with his request urged the Conference to allow him rest which he really deserves and helped in the election of Mr. Laud, the well-known figure of Bombay, unanimously as the General Secretary for the year 1937. Yet, Mr. Sastry could not be wholly left out and the light duty of Treasurership which he so kindly accepted ensures his continued help for the welfare of the Association.

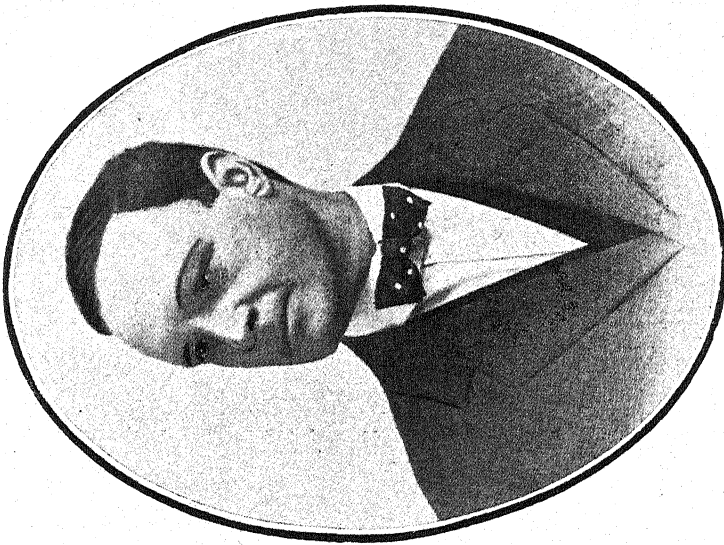
It was a sight to one and all to see the promising resourceful and jovial Veterinary Surgeon—Mr. Prem Nath Kak of Srinagar (Kashmir), who was always alert and helpful to the General Secretary with his experience. He was very busy both in the open Sessions and in the Office.

Mr. G. G. Oka, the Jubulpore Delegate who has been so silent in the Conference needs introduction to those Graduates who bear the real advancement of the profession in their hearts in this agricultural country. He is, it is presumed, the only private Veterinary Practitioner whom one could aspire to follow. His various veterinary activities as a practical man in the different spheres of the profession as Dairy Technologist and proprietor of the Live-stock Insurance Corporation, are really praiseworthy. This is the need of our day. May his grit live long!

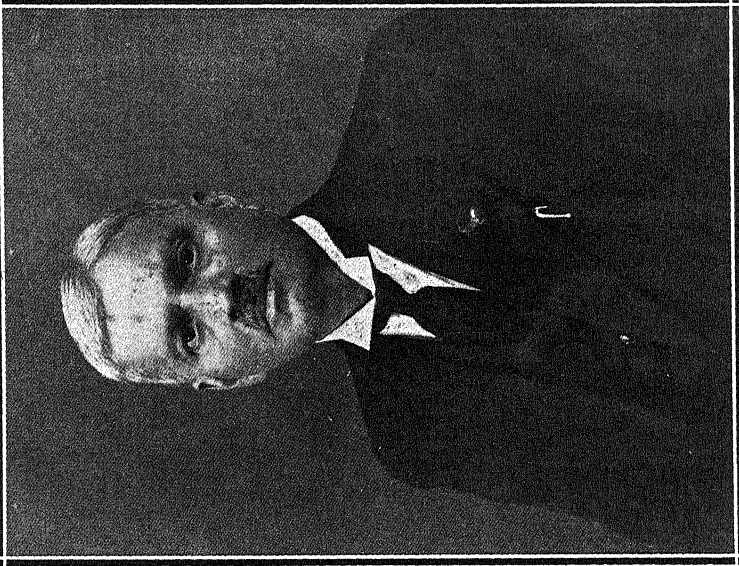
Without such a conference it would not have been possible to meet the two great personalities Messrs. Krishna Iyengar and S. D. Achar, ever with a smile on and we were happy to see them associating so closely with their subordinates. A real joy for Mysore Graduates who are so lucky!

Khan Saheb Dhakmarvala, the able and old Veterinary bird spared no pains to make the Conference a great success and Principal Phadke—whom every one honours most—was a standing personality on the dias.

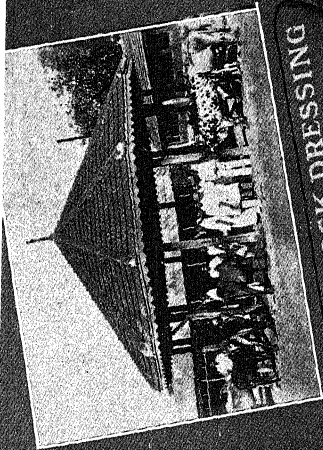
Mr. Garudachar not only staged linguistic dramas but many comics too—the last one, "Puff Doctor B. Ag." made everybody laugh till his sides burst.



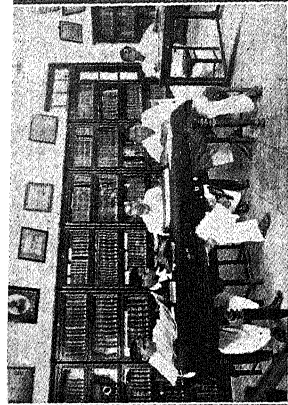
Major K. Hewlett, M. R. C. V. S.,
O. B. E., J. P.
PRINCIPAL.



Mr. V. R. Phadke, G. B. V. C., J. P.
PRINCIPAL.



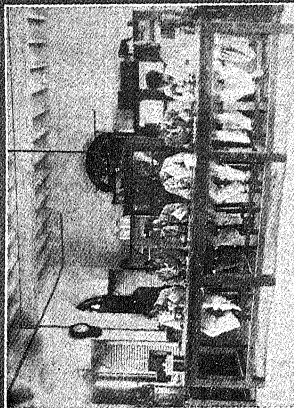
BULLOCK DRESSING
THEATRE



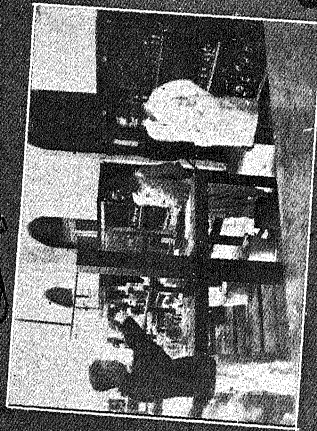
LIBRARY ROOM



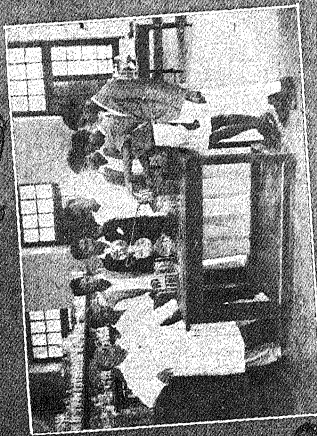
PRACTICAL EXAM.
SHED



PATHO-BACTERIOLO-
GICAL LABORATORY



PHARMACY



CHEMICAL LABORATORY

BECK & GAZDAR & SONS

Views of Interior of College and Hospital.

Last but not the least, the students of the Bombay Veterinary College were very courteous and hospitable, ever ready and cheerful at the beck and call of each of the delegates.

The Bombay Veterinary College Golden Jubilee was the most memorable event and a great honour to this *Alma Mater*—the premier Veterinary College of India. Both the outstanding figures, Principal Phadke and Khan Saheb Dhakmarvala, made it a real success. It was really a grand sight and the whole gathering cheered when Gold Medals were awarded by His Excellency the Governor. A sumptuous Tea Party concluded the show.

The Bombay Veterinary College Golden Jubilee Souvenir, 1886 - 1936.

The Bombay Veterinary College, Progress of Fifty Years.

INTRODUCTION.

From a comparatively small beginning made in 1886, in an old bungalow in the compound of the Bai Sakarbai Dinshaw Petit Hospital for Animals, to its present position in every way, the institution and development of the Bombay Veterinary College constitute a history of endeavour, benevolence and service which makes a particularly suitable reading on the occasion of the celebration of its Golden Jubilee.

ESTABLISHMENT OF THE COLLEGE.

In 1883, the Government of Bombay having recognised the necessity of providing a scientific knowledge of diseases of animals in Western India and spreading remedies all over the country, decided to establish a Veterinary College. With this object in view, a Committee was appointed who after deliberations for nearly 3 years, recommended to Government to open a college in Bombay. This was made possible by Government undertaking the initial and recurrent expenditure of the College and placing at the disposal of Government for clinical facilities the Bai Sakarbai Dinshaw Petti

Hospital for Animals which was established in 1883, by Sir D. M. Petit, Bart., in connection with the Society for the Prevention of Cruelty to Animals. As a result of this, the College was opened on 2nd August 1886, as a Government Institution in the compound of the Hospital measuring about 45,000 sq. yds.

BUILDINGS.

By a mutual arrangement certain buildings belonging to the Hospital were handed over to Government for the use of the College and other additional buildings required for the use of the College were built by Government. The large central bungalow was utilised as College with certain alterations and additions *viz.*, 2 large lecture rooms, a library, museum, pharmacy, office rooms for Principal and Professors, and quarters for the Resident Veterinary Officer. The teaching and clinical work of the College and Hospital were placed in the hands of the college officers and the general management of the Hospital and the patients in it remained in the hands of the officers of the Hospital working under the Secretary S. P. C. A., and the Manager of the Hospital. In this way a dual control was established which worked harmoniously for some time but later on owing to certain religious sentiments of the Jain Hindu Members of the Society, dissections, post-mortem examinations and the operations of castration were not allowed to be performed in the hospital compound. Owing to these restrictions imposed on necessary professional activities, Government were compelled to build Post-Mortem and Dissection rooms outside the hospital compound. Thus the dual control did not prove to be a satisfactory form of arrangement for a progressive Veterinary Institution. Other buildings such as a Chemical Laboratory, Students' Quarters, a Forge and Shoeing Shed were added from time to time and a Patho-bacteriological Laboratory was built by Sir D. M. Petit and handed over to Government in 1891. A Lazaretto for animals suffering from contagious diseases and an incinerator were built at Sewri in 1894, and transferred later on near the New College compound in 1923. This facilitated the imparting of practical instructions to students in certain contagious diseases and their control.

When the College was opened in 1886, there were only 3 other Veterinary Teaching Institutions in the whole of India, *viz.* one at

Lahore founded in 1882, essentially for education of Veterinary Assistants in the vernacular, another at Rangoon for education of Burmese boys in diseases of cattle, and a third one at Poona on a limited scale for Army purposes. Thus the Bombay Veterinary College was the only institution of its kind in India, *viz.*, for educating Indians in Veterinary Science on Western Lines.

For some years the Bombay Veterinary College began to supply fully educated Veterinary Practitioners for all parts of India and filled the gap then existing between the few European Surgeons and numerous but imperfectly trained Salutaries, and occupied a position in the veterinary profession similar to that of Assistant Surgeons in the Medical Department. This continued until Lahore and Rangoon began to give higher education in English and colleges were opened in Calcutta, Madras and Patna. But to Bombay belongs the credit of taking the initiative in this movement and this college which celebrates its Golden Jubilee to-day, may therefore be rightly styled the PIONEER of veterinary education in India.

COLLEGE STAFF.

At the opening of the College, the staff consisted of the Principal—the late Professor J. H. Steel, F. R. C. V. S., and three Indian Medical Officers and an European Farrier. But when trained Veterinary Graduates became available in 1889, two of them were taken on the college staff and the medical men were transferred. The present staff consists of Principal, four Assistant Professors, two Lecturers one House Surgeon and one Farrier.

COURSE OF STUDY.

The course of study is of 3 years in English since the foundation of the College but the standard has varied from time to time. It was the aim of Professor Steel to establish a course of instruction comparable to that of the Royal Veterinary College of London because he wished to obtain recognition of the Bombay Veterinary College Diploma from the Royal College of Veterinary Surgeons. With this object in view, he had drawn up a syllabus for an advanced course which was brought into force at the College in 1890, but before the termination of the first year of this new course, Mr. Steel died in January 1891. Within a year it was found that

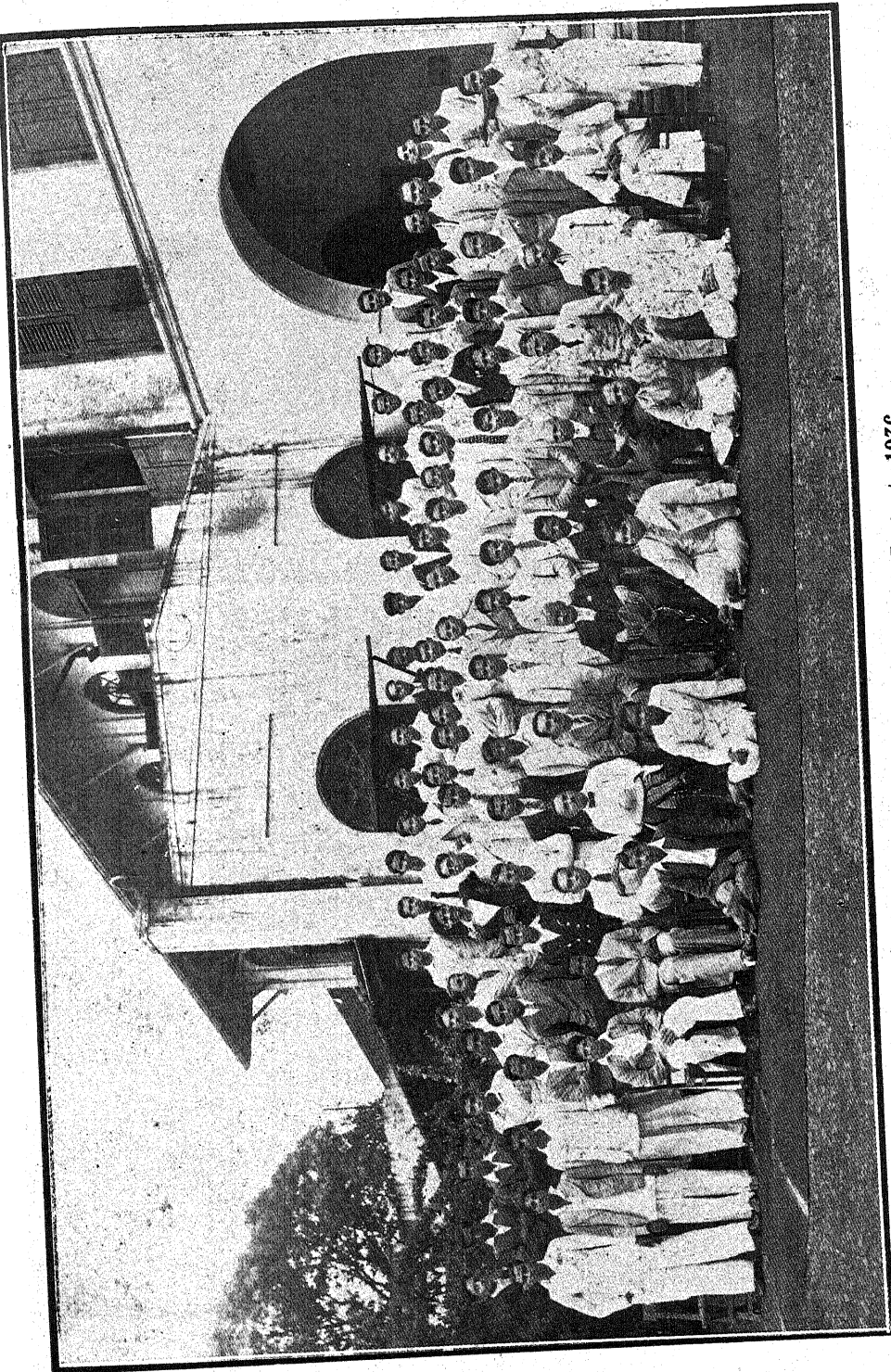
Mr. Steel's syllabus was too advanced and inappropriate to the conditions then prevailing in India and therefore it was modified and simplified. Notwithstanding this simplification, the course at the Bombay Veterinary College remained the highest standard of veterinary education in India for many years. In January 1900, a conference of the Principals of the various Veterinary Colleges and Schools in India was held at Umballa to consider the most suitable curriculum which would tend to uniformity of teaching at the various Veterinary Educational Institutions in India. This conference having recommended an uniform course of studies for all colleges in India, the written examinations at the Bombay Veterinary College were discontinued and the course simplified and made uniform with those of Bengal and Lahore colleges and a solely oral test was introduced. This curriculum remained the basis of all veterinary curricula until 1912, when the post of Inspector General, Civil Veterinary Department, was abolished and consequently the co-ordination of Veterinary Education in India ceased to exist and each Province settled the curriculum of its own Veterinary College without reference to that of others in India.

ADMISSION OF STUDENTS.

In the beginning non-metric students were admitted to the College after passing the college entrance test but later on, the admission was restricted to Metriculates. This did not attract many students, so again non-metrics were admitted. Now for some years Metrics are only admitted and we have had some B.A's and B.S.c's as students and it has been suggested that the College be affiliated to the Bombay University as in Madras.

NEW BUILDING FOR THE COLLEGE.

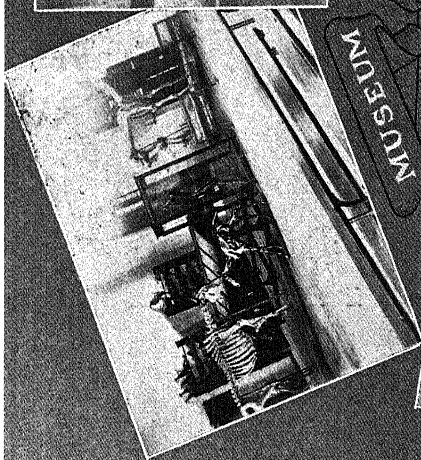
In consequence of the increasing want of accommodation Government purchased in 1908, a plot of land measuring about 43,000 sq. yards adjoining the Society's Hospital compound for a lach of rupees. A new college building for Rs. 94,000/- was erected on it, containing 2 lecture rooms, museum, library, chemical laboratory, lecture theatre and offices for the Principal, Professors and Clerks. Also a Hostel to accommodate 76 students at a cost of Rs. 81,000/- was built on the plot with play grounds. In this



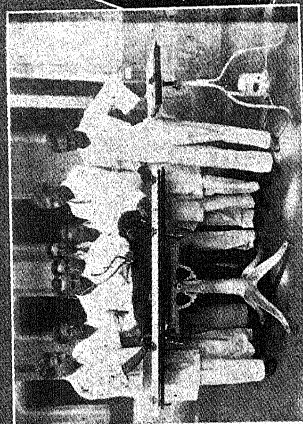
College Staff and Students, 2nd August, 1936.

Sitting from 3rd to 9th staff of the college:—

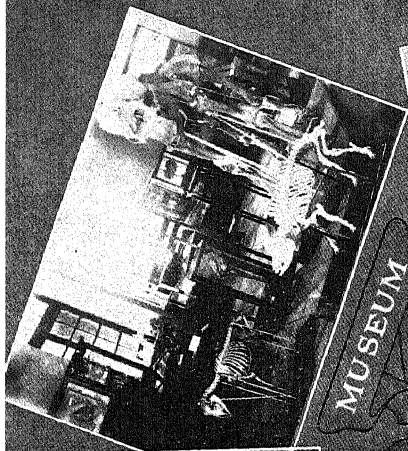
Mr. D. B. Khole, Mr. J. P. Damri, Mr. M. Mohey Deen, Mr. V. R. Phadke, (Principal), Mr. A. H. Khan, Mr. M. K. Garudachar, Mr. S. V. Sakhadev.



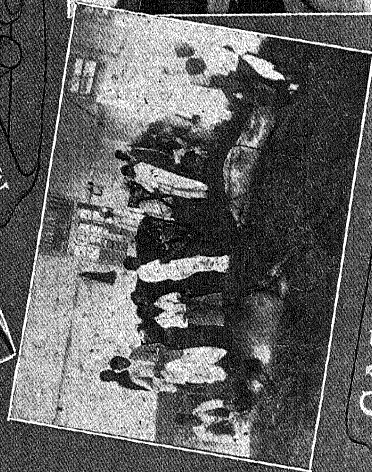
MUSEUM



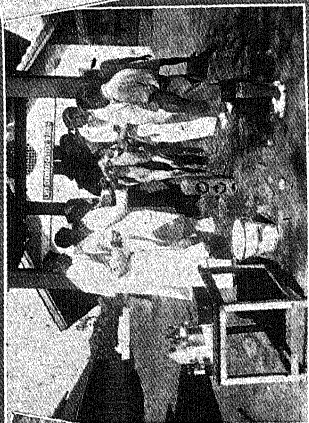
DOG EXAMINATION



MUSEUM



CASTING SHED



BULLOCK TRAVIS



DISSECTION

connection it will be interesting to note the speech made by the Hon'ble Mr. J. L. Jenkins, I.C.S., C.S.I., the then Hon'ble member in charge of Agriculture. While opening the New College Building in 1908, he said "that it gave him great pleasure to take part in the ceremony of formally opening the new college building. This erection was the newest acquisition to an institution which from small beginnings had grown to be one of the finest and best of its kind in India; he thought he might be warranted in saying that it was the finest and best. The preeminence which the College had attained was due to the energy and enthusiasm of successive Principals, first Mr. Steel, and then Lt. Col. J. B. Mills and Major Joslen, and there had been no decline in efficiency, and the present Acting Principal Mr. Sowerby has shown how these gentlemen had put their heart into the work of the College. No sooner had one demand to Government been granted than another had been pressed upon them, and the Government had been most anxious to supply them because the College was doing most admirable work and deserved the fullest support which both the public and the Government could give it."

CHECK TO PROGRESS.

It may be mentioned that the progress in all directions would have continued until owing to the Great War in 1914, the financial resources of the Bombay Presidency began to cripple and as a result, ample funds could not be allocated for Veterinary Education and the Civil Veterinary Department. The money so urgently needed for keeping the College course to the front could not be found, the highly trained staff so necessary could not be employed, the laboratories and equipment so urgently needed could not be provided and as a consequence a four years' course of study could not be introduced and the Bombay Veterinary College which had so long held place of pride in Veterinary Education in India had to yield the palm to the Punjab College with its four years' course, its splendid equipment and its large and highly trained staff and ample funds. Notwithstanding this, the Bombay Veterinary College has continued to give a highly efficient three years' course of veterinary training. The clinical facilities provided for the students are unrivalled in India, a very large number of cases of

all sorts amongst horses, cattle, dogs and birds being demonstrated to the students at the Bai Sakarbai Dinshaw Petit Hospital for Animals, whilst the Bombay City and Harbour Veterinary Department and the Municipal Veterinary Department provide ample facilities in the way of material for the study of Epizootic diseases and the practical demonstration of meat inspection. The written examinations have once more been introduced in addition to the oral examinations and certain subjects have been re-grouped so that they provide for the study of the recent branches of Veterinary scientific work.

GRADUATES OF THE BOMBAY VETERINARY COLLEGE.

During 50 years of its existence 758 Graduates have passed out with the Diploma of G. B. V. C. (Graduate of the Bombay Veterinary College). Of these many have distinguished themselves and have spread far and wide while some of them have been employed as Professors of other Veterinary Colleges in India and few others have passed the M. R. C. V. S. examination. They are met with in Ceylon, in Federated Malay States, in the Far East, in Mauritius, East Africa, Zanzibar, Aden, etc. Some Graduates have gone as far afield as Brazil and the West Indies. Some finding that the Veterinary profession offered insufficient scope for their abilities have ceased to practise and have entered other professions as Medicine, etc. There are no unemployed Graduates who desire employment.

In 1932, the Reorganisation Committee appointed by Government under the Chairmanship of the Hon'ble Mr. G. A. Thomas recommended as a measure of retrenchment the abolition of the College, and it is a matter of great satisfaction to all that as a result of the representations made to Government in favour of its retention, the recommendation was not accepted.

CONTROL OF THE COLLEGE.

In the beginning the administration of the affairs of the College was placed in the hands of a Committee of Management. Then it was placed under the Director of Public Instruction and the Director of Agriculture. In 1919, on the separation of the Veterinary Department from the Agriculture Department, the Principal

was placed in sole charge and in 1932, when the post of Director of Veterinary Services was created, the College was placed under the control of the Director.

From the above history of the College it will be seen that progress in Veterinary Science at the Bombay Veterinary College can be said to be great. The work in the Districts which was carried on under the Superintendents of Bombay and Sind and now under the Directors of Veterinary Services, has now remarkably increased because the number of veterinary dispensaries which was in the beginning 24 in Bombay and 6 in Sind is now 112 in Bombay and 18 in Sind. The Imperial Council of Agricultural Research was founded in 1929, and at the recommendation of the Council, posts of Veterinary Investigation Officers were created for all Provinces, and accordingly an Investigation Officer subsidised by the Council was similarly appointed in this Presidency in 1932. During the 50 years, 1,27,638 animals have been treated as in-patients and 48,311 animals as out-patients at the Bai Sakarbai Dinshaw Petit Hospital for Animals attached to the College.

Previously there were many difficulties pertaining to Veterinary Education in India because there was not much natural taste for attendance on animals and the occupation was looked upon as a menial one, being neither lucrative nor carrying much status. But now these prejudices have been overcome and an increased interest is being taken in the veterinary department and expenditure in this direction is regarded more favourably by the legislatures.

CONCLUSION.

Much has been written of the founding of the Bombay Veterinary College and its gradual development to its present state. This booklet contains a history of the progress made by a College which can boast of a fine record. The part which it has played in Veterinary Education and the manner in which it has influenced the needs of Veterinary Science in India have been fully dealt with here. Amongst the events of importance in the history of the College, a new chapter may be said to have been opened by appointing Mr. V. R. Phadke—a graduate of this College as the Principal of the College. Thus the years have rolled by and much

still remains to be done. The vicissitudes of time have been weathered and a bright future appears ahead. The steady progress of 50 years can be said to be most satisfactory and it is the pious hope of all of us that the College will continue to progress and attain its highest position under the aegis of the new constitution and be able to celebrate its centenary. Amen.

PRINCIPALS.

1-7-1886—8-1-1891	...	...	Prof. John Henry Steel, B. SC., F. R. C. V. S., F. Z. S., J. P.
15-4-1891—3-8-1891	...	...	Major G. J. R. Rayment, F. R. C. V. S.
12-8-1891—3-6-1906	...	...	Lt. Col. J. Brodie-Mills, M. R. C. V. S., J. P.
4-6-1906—28-5-1910	...	...	Major F. Joslen, F. R. C. V. S.
27-6-1910—31-3-1932	...	...	Major K. Hewlett. M.R.C.V.S., O.B.E., J.P.
1-4-1932—	...	...	Mr. V. R. Phadke, G. B. V. C., J. P.

ACTING PRINCIPALS.

1886—1936.

Dr. S. K. Nariman,
M. D., L. V. SC., J. P.
Capt. T. Pottinger, M. R. C. V. S.
Major F. S. H. Baldrey, F.R.C.V.S.
Khan Saheb N. D. Dhakmarvala,
G. B. V. C.
Major W. R. Hagger, F. R. C. V. S.
Major M. H. Sowerby,
M. R. C. V. S., J. P.
Mr. V. R. Phadke, G. B. V. C., J. P.,
Mr. M. Mohey Deen, M. R. C. V. S.

ASSISTANT PRINCIPALS.

1886—1936.

Col. H. T. Pease, F.R.C.V.S., F.Z.S.
Capt. R. W. Burke, M. R. C. V. S.
Col. E. W. Lardner, M. R. C. V. S.
Major F. S. H. Baldrey, F.R.C.V.S.
Col. J. Farmer, F. R. C. V. S.

Major M. H. Sowerby,

M. R. C. V. S., J. P.

Mr. W. A. Broad, M. R. C. V. S.

Mr. F. Ware, F. R. C. V. S.

Mr. V. R. Phadke, G. B. V. C., J. P.

ACTING ASSISTANT

PRINCIPALS.

1886—1936.

Dr. S. K. Nariman,

M. D., L. V. SC., J. P.

Khan Saheb N. D. Dhakmarvala,

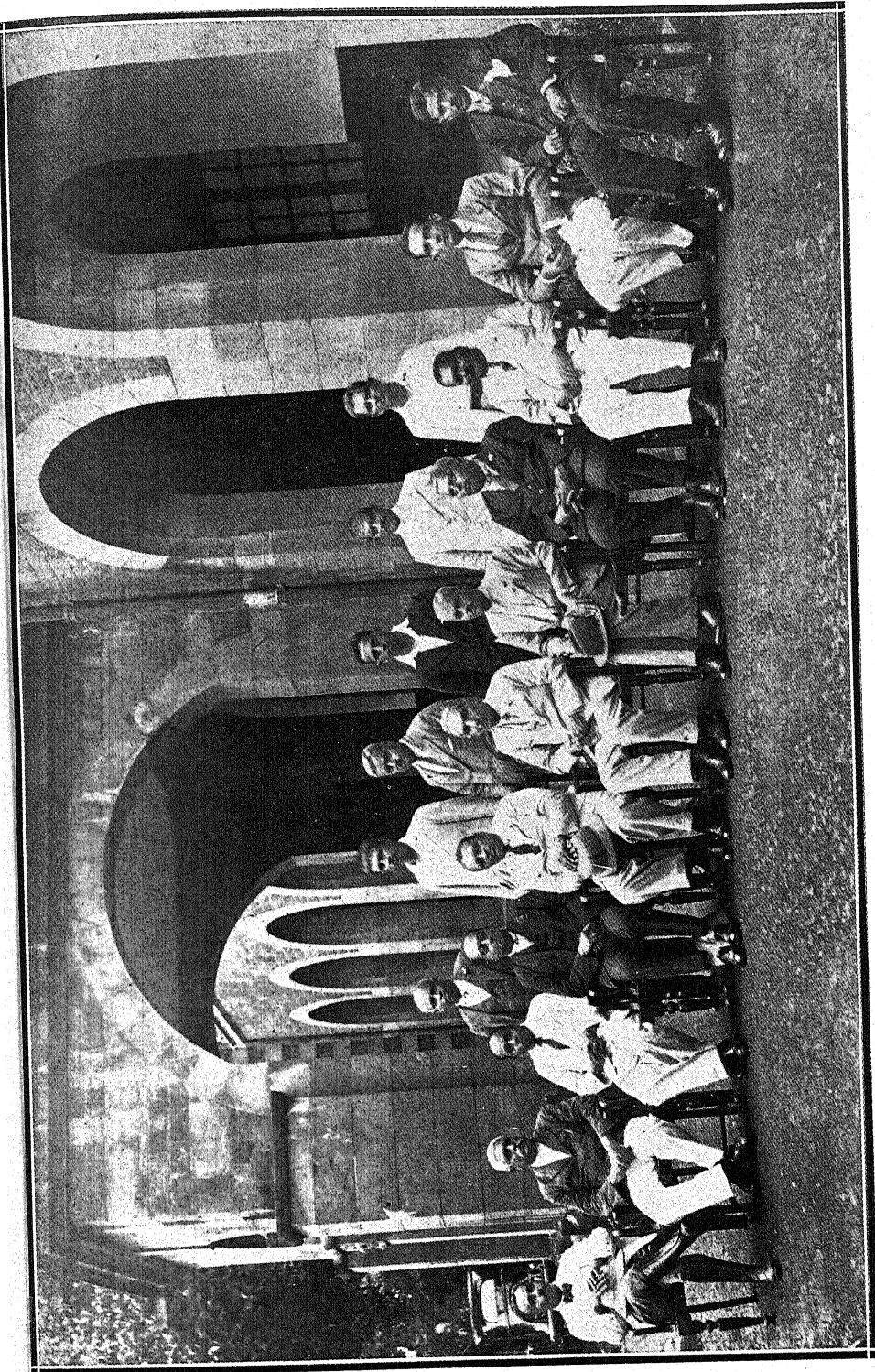
G. B. V. C.

Mr. M. Mohey Deen, M. R. C. V. S.

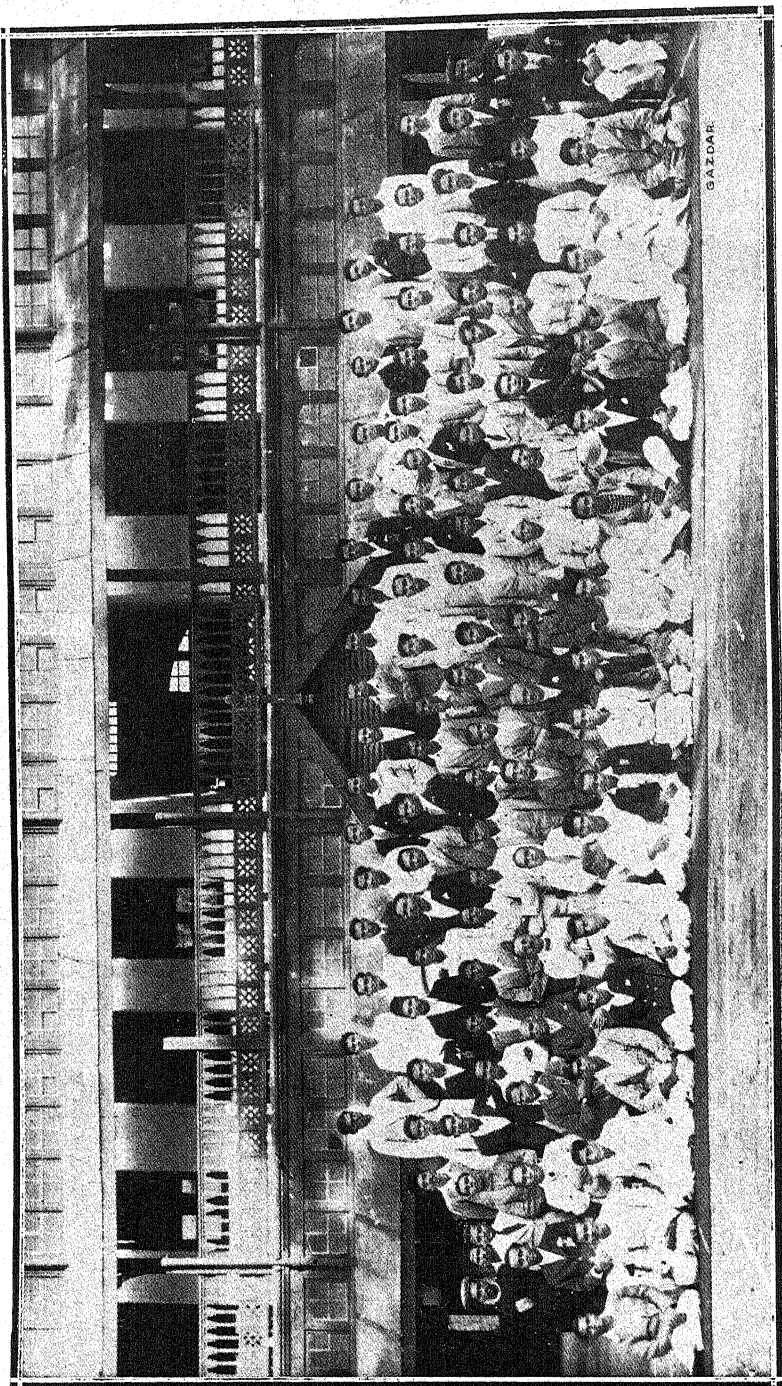
PROFESSORS.

1886—1936.

1. Dr. S. K. Nariman,
M. D., L. V. SC., J. P.
2. „ S. K. Engineer, L. M. S.
3. „ N.H.E. Sukhia, L.M.S., J.P.



Standing from left to right.
Mr. M. K. Garudachar, Mr. R. G. Sathe, Mr. G. K. Khasgiwale, Mr. S. J. Khambete, Mr. J. G. Gokhale, Mr. A. G. Khair.
Sitting from left to right.
Mr. J. P. Damri, Mr. P. G. Date, Mr. K. R. S. Aiyar, Mr. P. B. Cardmaster, Mr. D. S. Laud, (Treasurer.)
(Secretaries).
Khan Sahab N. D. Dhakmarvala, (Chairman), Mr. V. R. Phadke, Mr. Y. N. Marathe, Mr. V. G. Akula, Mr. M. Mohey Deen, Mr. A. H. Khan.



College Staff and Students January 1936.

4. Khan Saheb N. D. Dhakmarvala, G.B.V.C.	4. „ C. F. Fernandez, „
5. Mr. V. E. Vakharia, G.B.V.C.	5. „ H. C. Foy, „
6. Khan Saheb A. I. Shaikh, G. B. V. C.	6. „ C. Buckel, „
7. Mr. P. Miranda, G. B. V. C.	7. „ Mahmadkhan Bawakhan, G. B. V. C.
8. „ M. Mohey Deen, M. R. C. V. S.	8. „ E. H. Brand, „
9. „ K. B. Nair G. B. V. C.	9. „ S. V. Soman, „
10. „ A. H. Khan, „	10. „ J. F. Valladares, „
11. „ J. P. Damri, „	11. „ M. C. Joshi, „
12. „ K. R. S. Aiyar, „	12. „ T. E. Rodrigues, „
	13. „ P. DeSouza, „
	14. „ J. M. C. Rebello, „
	15. „ A. D. Lopez, „
	16. „ K. R. S. Aiyar, „
	17. „ G. V. Dadhe, „
	18. „ M. K. Garudachar, „
	19. „ T. N. Kulkarni, „
	20. „ D. B. Khole (Hospl. Surg.), G. B. V. C.
	21. „ S. V. Sakhadeo, „

LECTURERS.

1886—1936.

1. Mr. N. Narasingrao, G. B. V. C.	
2. „ H. S. Batliwala, „	
3. „ M. Serajudinkhan, „	

NOTICE.

As per decision arrived at the last All-India Veterinary Conference, that the present issue of the *Journal* should be a special Jubilee Conference Number and that all the proceedings should be published in this issue alone, we had to withhold from this issue all General and Clinical Articles received for publication for want of space and they will be published in the next issue.

We wish to invite the kind attention of our readers to page No. 295, wherein we have discussed about the *Veterinary Education in India*, and we hope to give more details in our subsequent editorials.

Editor.



CHANGE OF ADDRESSES.

General Secretary and Treasurer of the All-India Veterinary Association having been newly elected, their addresses will be as mentioned below, till notified otherwise:—

General Secretary:—

D. S. Laud, Esq., G. B. V. C., F. Z. S. (Lond.) F. R. H. S.,
Superintendent of Markets,
Crawford Market, Bombay 1.

Treasurer:—

M. S. Sastry, Esq., G. B. V. C.,
Veterinary Surgeon,
Veterinary Hospital, Nandyal, P. O.,
Kurnool District, (Madras Presidency.)

ACKNOWLEDGMENT

I have received numerous letters from friends and well-wishers congratulating me on the award of a Gold medal by the Bombay Veterinary College Golden Jubilee Celebration Committee in the recent All-India Veterinary Conference. Since I find it difficult to acknowledge individually, I thank them all through the medium of the *Indian Veterinary Journal* for the kind and warm congratulations.

16—1—37.	}	M. S. SASTRY,
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<i>Madras Presidency.</i>		

Editorials.

(continued from page 223)

VETERINARY EDUCATION IN INDIA.

(I)

The Animal Husbandry Wing Meeting which lately concluded its Sessions in Madras decided to recommend to the Government of India to establish a Central Veterinary College at Izatnagar to provide for higher Veterinary Education in the land.

While there is entire agreement with the principle that Veterinary Education of the highest standard should be made available in this country, the scheme as now contemplated for the establishment of a Central College is quite unnecessary, unjustifiable and extravagant. The fundamental idea behind the scheme is to obtain recognition of the Royal College of Veterinary Surgeons of the United Kingdom. The illogical implication of the scheme is that seven Members of the Royal College of Veterinary Surgeons from the British Isles are to be recruited to the staff of the College, besides a delegation from R. C. V. S., to inspect and satisfy itself of the standard of training imparted, and examiners obtained each year from the same country to ensure that the standards of training and examination in our country are equal to those of international standards. This scheme in its broad outline is estimated to cost initially Rupees nine lakhs and over Rupees two lakhs annually. This estimate does not include outside teachers, and examiners' fees and expenditure in connection with the inspecting delegation.

Let us examine for a moment the needs and conditions of this country in relation to those of Great Britain. While the main aim of the British Veterinary Colleges has been to produce private practitioners, it is well-known that a different type of man is required for Animal Husbandry Work of all kinds in India. The most important work which a Veterinary man has had to cope with in the past, as he will have to do for many years to come, being the suppression and control of contagious diseases of cattle—which constitutes in the main the live-stock of this country—the Veterinary Education should be on the lines best suited to India's needs

and not modelled on the lines of the British Colleges where importance is given to equine practice. In regard to the inter-national standard of Veterinary Education on which so much stress is laid, it must be clearly understood that the system of Veterinary Education differs from country to country and no inter-national standard in Veterinary Education has been laid down. For purposes of inter-national trade, however, reciprocal understanding exists between certain countries, notwithstanding the length of the course of training varying from four to six years. It must also be realised that the volume of India's trade in live-stock products with Great Britain is not so large as to shape the Veterinary Education of this country with a view to obtain the recognition of the Royal College of Veterinary Surgeons. To mention only two countries—Australia and Canada—have found it unnecessary to seek recognition of the R.C.V.S., in the interests of their live-stock trade.

It will be seen from what has been stated above that the conditions in Great Britain and India being so different, there is absolutely no justification for the proposed recruitment of Members of the Royal College of Veterinary Surgeons from the United Kingdom, while there are over 80 men, both Indians and Europeans, including Professors and Principals of Colleges, with the same British qualifications and considerable experience of the conditions and requirements of the country, who are better fitted to fill the posts with distinction in any Veterinary College training up to the highest standard. Further the type of men proposed to be recruited from abroad, though they may possess some teaching experience in Britain, cannot be expected to impart satisfactory training in diseases and conditions peculiar to India.

Now coming to the financial aspect of the scheme, there is no justification for this enormous capital outlay of nine lakhs of Rupees and the recurring expenditure of over two lakhs of Rupees for opening a new College, when there are at present five Colleges in India, some of which at any rate could be developed upto the required standard with an initial expenditure not exceeding 4% and an annual cost amounting to less than 10% of what is proposed for the new College. Further the Central College is intended to pass out only about ten students every year, a large number of which

will perhaps be absorbed by the Army leaving only a very few for employment in the Civil Veterinary Departments, where as if some of the Provincial Colleges are allowed to develop to a higher standard they would be in a position to train many more men according to the country's needs. The contention that the training of Indians in British Isles leading up to the Membership of the Royal College of Veterinary Surgeons is prohibitive, loses all its force because of the fact that the training in the new College is not going to cost the country any less.

Izatnagar, the proposed place is a very unsuitable one to start a College of this description. Izatnagar is an isolated area in United Provinces having Bareilly town close to it. This place has come to some prominence as the Sera and other Biological products for the Imperial Veterinary Research Institute Muktesar are now manufactured in this station. The Muktesar authorities are trying to develop Izatnagar as a sub-station for them as Animal Nutrition, Poultry Research and some other sections are at present located in Izatnagar.

But the proximity of a Research Institute is only a desirable addition to a Veterinary College. The most important need is to have a wealth of clinical material of all kinds of animals and a small place like Izatnagar is not the area where such are available. There is not even a Veterinary Hospital at present in Izatnagar to supply this need. As the place is lacking in general scientific and cultural atmosphere a student of this College cannot be expected to have a broad and All-India outlook.

The All-India Veterinary Conference that met at Bombay during the Christmas holidays unanimously condemned the scheme of one Central Veterinary College by the Government of India as unsuitable and unnecessary to the needs of the country. The general feeling of the rank and file was that the originators of the scheme are obviously trying to find employment to some Europeans who are to be paid highly in a service where the European element is getting extinct.

If the object in having the new College is to make India self-sufficient in the matter of Veterinary Education, then the logical

course would be to make the fullest use of the resources in men and materials already available in India.

The Government of India instead of financing a New College should, while allowing development of Provincial Colleges to the required standard, take immediate steps to constitute an *Indian Veterinary Council*, whose function will be to lay down and maintain the requisite standard of Veterinary Education and to arrange for the conduct of examinations and grant of diplomas. This is the only suitable and satisfactory solution of the problem of higher Veterinary Education in India, consistent with the approaching Provincial Autonomy and Federation.

Reviews.

Annual Report of the Civil Veterinary Department, Bihar & Orissa for the year 1934-35.

The Bihar and Orissa Veterinary College completed its fifth session during the year and the buildings damaged by the devastating Earthquake of January 1934 were all thoroughly repaired. The term of the four professors who were originally employed on contract basis was extended up to the end of the year. The fresh admissions have been gradually increasing every year and with the twenty-five new admissions there were fifty-six students at the beginning of the year and at the end of the sessions there were only forty-seven students. Ten students obtained their diploma and the results were satisfactory. The P. G. Course was discontinued. The College Library received fresh supply including the four text books presented by Principal Davis. The hospital attached to the College continued to do quite useful work. The attached Research Laboratory does not appear, during its existence of five years, to have produced any tangible result of value in the domain of research except the finding of the casual growth of Nasal Granuloma in cattle which was also discovered simultaneously by workers elsewhere. The Director wants to put the Laboratory on a more practical basis and it is good. Research on Kumri and Otorrhoea will be continued. 746 specimens were examined for diagnostic purpose and 47 post-mortem examinations were conducted. The half-yearly professional examinations of subordinates were held. 14 out of 21 passed in all subjects. We are not told if there is a similar examination for the officers of the Provincial and Indian Services.

There has been a marked tendency for the decline in the incidence of contagious diseases. The number of outbreaks has fallen down to 4,158 during the year from 8394 in 1927-28. In spite of this steady

decline, we find yet Rinderpest and Hæmorrhagic Septicæmia in almost all the districts of the province. The report has been reasonable when it says "In order that the activities of the Department can be made more readily accessible to the *Raiyats*, the question of increasing its subordinate staff, especially the Touring Veterinary Surgeons, should receive the earliest attention of Local Bodies". In some provinces, the State and its Veterinary Advisers feel that the responsibility of combating the contagious diseases lies on it and only the question of opening and running the Veterinary Hospitals and Dispensaries should be entirely in the domain of the Local boards. There does not seem to be any uniform idea on these important points of rural welfare. Out of 122,840 attacks, 14,539 died. 95,984 animals in 1,777 outbreaks were attacked with Foot and Mouth and 434 died from it. The staff attended 3,572 outbreaks. Field Veterinary Dispensaries and Goat-virus vaccinations against Rinderpest were apparently responsible for keeping away the staff from attending to the remaining outbreaks. The report here again rightly warns that "there is every likelihood of a gradual falling off in attendances of actual outbreaks as goat-virus vaccination progresses, a vital point to consider" if the touring assistant surgeons are not increased in number. There has been a distinct improvement in the reporting of the outbreaks by the police.

Anthrax claimed 3 deaths in equines, 246 in bovines. Stopping of green grass purchase from the local supply which was responsible for the frequent recurrence of this disease among the mounted police horses at Singhbhum, helped in keeping the horses free from it there. Only one case of equine surra was reported and it was cured with Naganol. 98 bovines died from surra. There was no mortality among the fourteen cases of strangles. 3 deaths occurred from Tetanus in equines and 5 in bovines, 1 of rabies in an equine and 7, in bovines.

Rinderpest claimed 10,531 deaths, Foot and Mouth Disease 143, H. S. 2,448, Black Quarter 73, Liver fluke 648, Johne's disease 3, Bovine piroplasmiasis 2, Tuberculosis 1, Fowl cholera 54, Equine tetanus 5 and rabies 51 among other animals.

Goat tissue virus vaccination has proved much safer and easier to control than the goat blood virus and it was therefore satisfactorily adopted against Rinderpest in both outbreaks and free areas as well. The cost of goat tissue virus was reduced from Rs. 3-8-0 to Rs. 2-0-0 and further to Rs. 1-2-0 per ampoule of 100 doses, by the Imperial Institute of Veterinary Research, Muktesar. 94,888 animals received serum-alone inoculation, 163,134 were vaccinated either with goat blood virus or tissue virus. Almost all the Veterinary Assistant Surgeons were allowed to do this unlike in some provinces, where only the gazetted officers have to do these goat adapted virus (blood and tissue). It is indeed necessary that all the officers—provincial and subordinate—should be allowed to do if this has to be done on a large scale to benefit all stock owners in the country. Arrangements have been made for obtaining the tattooing machines with figures etc., only 56 animals were done by S. S. method against Rinderpest.

Against H. S. 47,832 animals were protected, against Anthrax 6,383 including 401 equines and against Black Quarter 4,575 animals. There

has been a considerable saving in the cost of vaccine and sera owing to the cheap supply of goat virus and the savings were not surrendered but were used for the benefit of the Veterinary work.

No new post was created in the year, but several proposals for the current year have been mentioned in the report.

Total number of patients treated by the Veterinary Assistant Surgeons on tour, at their head-quarters and at field Veterinary dispensaries was 354,831 including 97,342 castrations. They visited 56,920 villages. The year opened with 134 rural veterinary dispensaries and closed with 139. These institutions—only 3 years old—have treated 123,075 animals. The report has candidly acknowledged that "the strain on the present staff necessarily increased" and urges the Local Bodies to increase the staff to maintain the efficiency through these useful institutions. The 33 hospitals treated 93,587 in and out-patients. In addition, 19,330 castrations have been done and 13,324 cases, not brought to the hospital were supplied with medicines. All these figures are much in excess of those in the previous year. The department has been maintaining and controlling the cattle breeding and dairy farms of Patna and supervising the stud bulls in the different veterinary hospitals. The milk yield has increased in the dairy farm. In addition to milk, cream and ghee are also sold in the dairy farm. The farm cultivates numerous fodder crops. This affords facilities for teaching practical dairying to the students of the college.

All the important horse and cattle fairs and shows were attended by the staff. An epidemic of a disease showing colicky pain and diarrhoea broke out in Sonepur and claimed 36 deaths out of 116 attacks. With the removal of grass suspected for poisoning, the disease disappeared.

The subordinate staff of the department consisted of 13 Veterinary Inspectors, 6 Staff Veterinary Assistant Surgeons, 2 Laboratory Veterinary Assistant Surgeons, 12 Reserves, 31 Stationary and 95 Touring Veterinary Assistant Surgeons.

The Veterinary Investigation Officer has considerably helped the Department with his important work in connection with the goat tissue virus inoculation, John's disease, parasitic and other diseases.

Usual propaganda work through veterinary magic lantern slides, demonstration and exhibition was carried out.

The report records all round increase in the department's beneficial activities.

Annual Report of the Imperial Council of Agricultural Research for the year 1933-34.

This is the fourth Annual Report issued by the Council on its work. Under "the outline of the Council's work on Animal Health and Husbandry" we find a lot of useful information of great importance to the profession in this country and we reproduce the relevant portions for the information of our readers since many of them have no opportunities of knowing all these various activities of the Council for the improvement of live-stock. In spite of the continued financial depression both in the centre and provinces, we are glad to see the Council has continued its various activities.

"(i) *Animal diseases: Disease Investigation Officers in the Provinces* :—In the last two reports mention was made of the appointment of Veterinary Investigation Officers in all Governors' provinces, except Burma and North-West Frontier Province and in the Hyderabad State. The idea underlying the appointment of these officers is to provide a link between the provincial field staff and the research institutions in India and to promote scientific investigation and the collection of authentic data in provinces and states regarding the incidence and economic importance of diseases of live-stock in different areas. Provincial Veterinary Investigation Officers are engaged in studying local conditions in the field and supply information and material for systematic record and research at the Imperial Institute of Veterinary Research, Muktesar or other suitable institutions, such as the Veterinary colleges where the material can be satisfactorily dealt with. By such collaboration it is hoped, in the course of time, to investigate a large number of local disease conditions, the cause of which is at present not fully understood and to obtain a fairly complete survey of disease conditions throughout India. This investigation staff would moreover be able to test out in the field and adopt to Indian Conditions, new methods of disease control and treatment, and would be available to Directors of Veterinary Services to take up the study of local disease problems, under scientifically controlled conditions. At the same time suitable young officers would gain experience in practical disease investigation in the field which should be very valuable in research. The value of the work done by Disease Investigation Officers has already been recognised by Provinces and States in which they are employed and it may be anticipated that at the end of five years the necessity for the permanent provision of such staff and facilities will be generally recognised.

Annual Reports from these officers are received and circulated after examination by expert committees of the Advisory Board and these reports have clearly indicated the extent of the investigation work which is required as to disease conditions, the incidence and economic importance of which has not been understood or which are peculiar to live-stock in India. Their work also has drawn attention to the necessity for precise investigation of disease conditions the cause of which were known but the control of which had not been

adequately studied under field conditions, *e. g.* Surra among cattle. The investigational work of these officers in regard to the practical application of new methods of disease control based on current research *e. g.*, Rinderpest and Nasal Granuloma—has also produced results of great economic importance to the country. The results are important to the well-being of the peasant by reducing mortality and to Local Governments by reducing the cost of protective measures against disease.

Another important scheme which has been sanctioned by the Council and which has been financed is one for the investigation of the most suitable and economic methods of combating different types of parasitic infection in ruminants in the field, concurrently with experiments to determine the extent to which mineral deficiencies tend to lower resistance to such parasitic infection in certain areas. There has been a steady increase in parasitic disease among domestic animals, chiefly ruminants, in lowlying damp areas such as riverain districts and in areas which are under water for a portion of the year, due to water-seepage from canals. This scheme has been sanctioned to attempt to ascertain the effects on the health of stock which graze on such flooded areas and the cause of this increased infestation, and to test under strict control various methods of treatment and control of each type of parasite, with due regard to cost. Funds were placed at the disposal of the Government of Punjab during the year under report, but the scheme could not be put into effect immediately due to abnormal climatic conditions.

Mention was made in the last year's report of another important scheme designed to secure a thorough study of Tuberculosis and Johne's disease among domesticated animals in India. In view of the urgency and importance of the subject the Governing Body of the Council sanctioned a sum of about Rs. 2 lakhs for undertaking this investigation and it will be given effect to as soon as funds are made available.

The action undertaken by the Council to promote measures for the prevention and control of animal diseases by means of suitable All-India Legislation was carried a stage further during the year. The draft bill and the model rules drafted by the Special Committee were approved by the Animal Husbandry Wing of the Board of Agriculture and Animal Husbandry and by the Advisory Board with slight amendments. These are now under the consideration of the Government of India.

(ii) *Animal Nutrition*: The Government of Bengal applied in 1930, for a grant of Rs. 48,590 for the appointment of a Physiological Chemist to study animal nutrition problems at Dacca. The Agricultural Department of the Province had already been carrying out crop experiments with indigenous and imported fodders, the test for which had been yield per acre and palatability gauged by their refusal or otherwise by stock. This investigation is however, intended to estimate the nutritional value of the fodders grown and work was started on 2nd January 1932. The first Annual Report was considered by a Committee and the Advisory Board and certain suggestions were then made for the future prosecution of the work.

(iii.) *Animal Industry* :

(a) *Goat Breeding* :— In January 1931, the Advisory Board recommended a scheme for research in goat breeding submitted by the Mission Poultry Farm in Etah. The lines of research proposed are :—

- (i) Experimentation with Swiss Toggenberg goats to test their suitability for Indian conditions, and to determine whether they will reproduce themselves pure in India without serious loss of vigour.
- (ii) Selective breeding of the best *Jamna Pari* goats by means of recorded milk yields and produce tests.
- (iii) Selective breeding of the best *Bar-Bari* goats by means of recorded milk yields and produce tests.

Work was started in June 1931, and two Annual Reports have so far been received. The opinion of the Committee which examined these reports was, that these were a valuable record of work carefully carried out and that the grant made by the Council had been usefully employed ; and it was pointed out that the publication of Mr. Slater's report had attracted the attention of goat breeders in America who were impressed by the results obtained from some of the best of Mr. Slater's goats. The work is being continued on similar lines and arrangements have been made to record the butter fat content of the milk and to ascertain the cost of production of milk by these goats under the system of management adopted.

(b) *Sheep-breeding* :—At the August 1933 meeting of the Advisory Board a special Committee was appointed to consider two schemes of sheep-breeding submitted by the Governments of Bombay and Hyderabad. The committee recommended that a co-ordinated sheep breeding programme should be experimented with in the areas noted against each.

Bikanirs—At Hissar and Hingoli.

Deccanisheep—At Hosur, Bhamburda (Bombay), at Mahbubnagar in Hyderabad State and at a selected centre in Mysore.

Dumbas—At Bharkhand in Baluchistan.

Guddi sheep—At Kangra.

Schemes of sheep-breeding research have accordingly been submitted for the consideration of the Council and a scheme for sheep-breeding research in the Bombay Presidency costing about Rs. 85,000 has been approved by the Governing Body of the Council and is awaiting allotment of funds. The scheme from the Hyderabad State was however, withdrawn for revision on the recommendation of the special committee which dealt with it.

(c) *Animal Husbandry Bureau*—In order to develop Animal Husbandry on proper lines in India it is considered that the following items of work are necessary :—

- (1) To continue the systematic examination, collation and publication of such statistical matter as is now being dealt with by the Assistant Statistician in regard to the comparative efficiency of the different feeding scales adopted in the Military Dairies and other dairy farms and the effect of disease and other factors on dairying efficiency.
- (2) To develop the regular collection of such data for All-India.
- (3) To make a start with the official registration of the best breeds of pure bred stock on an All-India basis ; and
- (4) To provide a nucleus organisation for the industrial development of live-stock industry in India on modern lines.

As in all progressive live-stock countries, exact information on such matters with complete statistical data of internal as well as external trade in animal products are essential for the proper development of animal industry. In the absence of breed societies Government assistance is also necessary in India for such essential live-stock improvement work as official registration of pedigree stock and it was agreed that an All-India Bureau of Animal Husbandry should be established. Due to financial stringency it was not possible to embark upon an ambitious scheme but the nucleus of such a bureau with an Assistant Statistician has been sanctioned with effect from April 1934. The work that will be entrusted to this staff immediately is—

- (a) to complete the collection, statistical analysis and publication of the data available in the Military Dairy Farms organisation and other Government Farms and to institute a system for the regular collection of such material in the future.
- (b) to perfect a system of collecting, collating and publishing All-India statistics regarding the incidence of and mortality from contagious disease among live-stock, such as is required for the proper control of contagious disease.
- (c) to institute an All-India system of registration of pedigree stock (of the best breeds), based on an official definition of their breed characteristics and of officially controlled milk recording in the dairy cattle, and
- (d) the collection and publication of such other information as may be required for the proper development of Animal Husbandry in India.

10. *Veterinary Education* : The recommendations of the Animal Husbandry Wing of the Board of Agriculture and Animal Husbandry on this subject referred to in the last year's report were submitted to the Advisory Board which adopted the following propositions :—

- (i) A three years' course with the F. Sc., as the qualification for admission is the minimum.

- (ii) A four years' course from the F. Sc., should be adopted in each Veterinary college when conditions permit. The Board cordially approved of the fact that a four years' course is already given at the Punjab Veterinary College and agreed that no recommendation should be made regarding the curriculum in the Punjab Veterinary College.

The recommendations with the draft curriculum have been forwarded to the Education, Health and Lands Department of the Government of India, which referred the recommendation of the Royal Commission on Agriculture to the Council.

In regard to the institution of short elementary vernacular courses in dairying in the constituent Indian States of Hyderabad, Mysore and Baroda, it is sufficient to say that these States are alive to the importance of instituting such courses and that necessary action is being taken by them.

11. *Cattle Census*:—The Royal Commission on Agriculture in India drew attention to the lack of uniformity both in the methods adopted and in the time at which the live-stock census in India is taken by the various provinces. The Royal Commission recommended that the quinquennial census should be taken simultaneously throughout India, that an effort should be made at the next census to secure uniformity of classification and that, to this end, the heads under which the returns should be made should be settled at the next Cattle Conference. As the Animal Husbandry Wing of the Board of Agriculture and Animal Husbandry has taken the place of the Cattle Conference and as the meetings of the Board of Agriculture are held under the auspices of the Council the Government of India, Education, Health and Lands Department, referred the recommendation of the Royal Commission to the Council. The subject was considered by the Animal Husbandry Wing of the Board of Agriculture and the Animal Husbandry and their recommendations which have been approved by the Advisory Board of the Council are shown in Appendix 11. At the close of the year these were under the consideration of the Government of India."

We are glad to see that the several problems neglected all these years are receiving attention now at the hands of the Council. The public may think that the Council has been moving slowly in all its activities but the problems affecting the vast country and neglected for a long time require much time and patient work for their investigation and solution. The Council has been doing this in a thorough manner.

Annual Report of the Imperial Council of Agricultural Research for the year 1934-35.

This is the fifth report on the working of the Imperial Council of Agricultural Research. It is gratifying to note that the authorities were pleased to agree to the retention of the post of the Animal Husbandry Expert for a further period of five years from the 18th April 1935, in

view of the growing importance of the work in connection with Animal Husbandry and Veterinary Science. The term of Col. Olver was extended for a period of three years and four months from the 18th April 1935. He is indeed a very valuable asset to the Council especially now when His Excellency Lord Linlithgow is the Viceroy of India. The country naturally expects much good from these two who have been well known for their keen interest in the live-stock problems. The report contains among other things, an outline of the Council's activity on Animal Health and Husbandry. During the year under review the Council continued its endeavours to stimulate research in various branches of Animal Husbandry.

The main features of the work are given below :—

- “1. The annual reports of Veterinary Investigation Officers would be of great value to other workers and they should be circulated to all provinces and research institutions as early as possible.
2. Maps of the provinces should be published along with the reports.
3. Every item of investigation undertaken during the year should be dealt with in sufficient detail to enable the conclusions arrived at to be criticised by other workers.
4. All the yearly reports should deal with the year ending on March 31st and should be submitted by June 1st.
5. The Veterinary Investigation Officers should be permitted to visit the Imperial Institute of Veterinary Research, Muktesar, for about ten days every year to discuss problems arising out of the work under investigation in their provinces and also to give them an opportunity to obtain the latest information as to the results of the research in progress at the Institute.

In this connection the Director, Imperial Institute of Veterinary Research, Muktesar, has since pointed out that it would be impossible to accommodate all Veterinary Investigation Officers at Muktesar at the same time and suggested that it would be better for them to be detailed individually for refresher courses for longer periods, at least once in the course of their term of employment when arrangements could be made for their accommodation. While adopting the report of the Committee the Advisory Board further recommended that the staff of the Imperial Institute of Veterinary Research Muktesar, should be strengthened. This recommendation has been communicated to the Government of India.

(b) *Further investigation into vaccination of cattle against rinderpest in the Central Provinces*:—This scheme which was approved by the Governing Body in November 1933, was sanctioned in August 1934. The questions to be studied are:—

- (1) The best method of obtaining virus. Should goat virus first be used or would local virus from an actual outbreak give better results?
- (2) How should the virus be distributed in the field?
- (3) By what method of feeding or by what adjuncts to the ordinary diet during various seasons of the year can the loss of flesh so commonly found after vaccination be prevented?
- (4) What is the number of passages through goats required for safe and yet efficient vaccination in the various breeds?
- (5) How can the recrudescence of piroplasmosis and coccidiosis after vaccination be controlled?
- (6) Under what conditions can vaccination be undertaken during actual outbreaks?

(c) *Investigation of Johne's disease among cattle in Mysore* :—This is another scheme to which financial sanction was conveyed during the year under report. The lines of research proposed are :—

- (1) Epidemiological survey of the disease in Mysore State commencing with Bangalore and Mysore cities.
- (2) Preparation and investigation of avian tuberculin and Johnin for testing and comparing the results with complement fixation and other serological tests.
- (3) Extension of work on the chemotherapy of Johne's disease using Ol. Chaulmoogra and its derivatives.

On the recommendation of the Advisory Board, the Council has financed the scheme subject to the condition that intensive work on item 3 of the programme of work is carried on and that only such work will be attempted on item 2 as can be done within the duration of the experiment and with the resources available.

(d) *All-India Legislation* :—The action taken by the Council to promote measures for the prevention and control of animal diseases by means of suitable All-India legislation was carried a stage further during the year. The draft Bill and model rules which had been under the consideration of the Government of India were circulated to Local Governments and Minor Administrations for their views."

We next find mention of the work under Animal Nutrition, goat and sheep breeding. An Animal Husbandry Bureau was started during the year. Its main functions are, the collection, collation, and dissemination of information required for the proper development of Animal Husbandry in India, and to institute an All-India system of registration of Pedigree Stock based on the official definition of their breed characteristics and of officially controlled milk-recording in the case of dairy cattle. The report mentions of the serious handicap to the work of this Bureau due to the absence of suitable organisation in Provinces and

States for the collection of such information and the lack of data regarding live-stock and their products, similar to those published in other countries, especially those relating to trade statistics. While reviewing the reports of the Veterinary Departments in Ceylon, F.M.S., and other places outside India, we have referred many times to this lack of information in the Indian reports. We are, however, glad to note that the Council has done a great deal of valuable spade work during the year to show the economic importance of developing Animal Husbandry in India on the lines followed in all progressive live-stock countries. The report promises to develop the statistical side and collect and publish systematically trade statistics and other information necessary for the development of animal industry. The work done during the year has been summarised as under :—

1. "Collection, collation and publication, in four papers dealing with information obtained from Military and other Government Dairies, of data regarding the economic efficiency of different types of cattle.
2. Similar data were collected regarding goats and a paper prepared for publication.
3. Data were collected regarding accessory factors in milk production, costs of production of milk in privately owned dairies and from buffaloes maintained by *Gawdlas* in towns and villages, potentialities of Indian dairy cattle for dairying, advantages of weaning, etc., and the cost of production of milk from goats.
4. Material was collected for drawing up a case for protection of the butter industry in India.
5. Standard forms were drawn up for the systematic recording of milk and pedigrees of cattle, and circulated for trial and criticism. Steps were taken for the collection of information regarding characteristics of different breeds of cattle in India with a view to bringing out a brochure on the subject as a preliminary step for the establishment of herd books.
6. Notes were prepared showing the incidence of Foot and Mouth disease and contagious Abortion in cattle with preliminary estimates of loss due to these diseases and their effects.
7. Numerous enquiries were dealt with including a number from foreign countries."

The scheme for research in the systematic cultivation of medicinal plants and study of food poisons in India, submitted by Lt. Col. R. N. Chopra of the School of Tropical Medicine, Calcutta, through the Government of Bengal in 1932, was recommended by the Advisory Board and approved by the Governing Body in 1932, but due to lack of funds it could not be sanctioned before this year. It is since sanctioned and the work is going on. The lines of research proposed in this scheme are :—

- (1) "To make a general survey of the medicinal plants which are natives of India and of those which have been naturalised.
- (2) To get in touch with the Agricultural Departments and Institutions in different provinces and encourage them to grow suitable medicinal plants.
- (3) To analyse the medicinal plants so produced in order to see if their active principles come up to the standard required by the pharmacopœias. In this way it will be possible to determine in what part of the country drugs do best.
- (4) To test pharmacologically and therapeutically the action of these drugs.
- (5) To carry out systematic investigation of different food and forage poisons occurring in the country."

Another important scheme approved and financed by the Council during the year is one submitted by the Government of Mysore for investigation of Indian Fish Poisons and other Indian Forest products for their insecticidal properties. The lines of research proposed in this scheme are :—

- (1) "To ascertain and collect through local agencies the plants that are commonly used as fish poisons; to have detailed information as regards their distribution, availability and methods of use.
- (2) To conduct preliminary tests to ascertain the insecticidal properties of these plants.
- (3) To extract the active agent of the plant.
- (4) To test the insecticidal properties of the extract as obtained by various methods and to make comparisons with a view to ascertain which method is the most successful producing the least change in the process of extraction.
- (5) To test the residues to see whether any of the active agents is left over unextracted.
- (6) To ascertain by actual tests the least expensive and the most successful method, and to fix the strength to be used against various pests.

The Animal Nutrition Committee made concrete suggestions for the establishment of a Central Animal Nutrition Institute for All-India and this was accepted by the Advisory Board of the Council. The dairy committee discussed the steps necessary to promote the development of the indigenous butter industry. Since large quantities of butter are imported into the country at a great cost every year the promotion of local industry will be a step in the right direction. The special committee appointed for the purpose of considering the necessity for a more thorough inspection of milk and dairies in cities and rural areas

and legislation for the prevention of adulteration of dairy products recommended that in order to obtain first-hand information requisite for a detailed examination of the question of legislation on milk and other dairy products, sub-committees should visit representative places and obtain the necessary information. The four sub-committees appointed for the purpose have submitted their reports and these are under consideration.

All these activities are of vital interest to the live-stock problem in the country. The Council, its Expert Adviser in Animal Husbandry and the members concerned ought to be congratulated on the progress so far made. We hope these and other similar questions affecting the live-stock will receive greater and *speedier* attention during the Vice-royalty of His Excellency Lord Linlithgow than in the past.

Handbook for Veterinary Surgeons:— By Fred Bullock, LL.D., Barrister-at-Law; Author of *The Law Relating to Medical, Dental and Veterinary Practice*. Third Edition, 1936, 302 pages, cloth bound, Price Sh. 7.6d nett. Published by Messrs. Bailliere, Tindal & Cox, 7 & 8, Henrietta Street, Covent Garden, London, W.C. 2, England.

This handbook consists of 8 Chapters which treat of the laws relating to Veterinary Practice, Professional Discipline, Common Law Duties, Statutory Duties, Procedure in Courts of Law, Post-Graduate Studies, Taxes, Licences, Insurance and Government Services. There are four Appendices giving the lists of Acts and Orders, summary of diseases of animals Acts, importation of dogs and cats order.

Although the book is mainly intended for the use of the Veterinary Surgeons in Great Britain and Ireland, there are certain matters relating to Veterinary Jurisprudence which will be useful to practitioners in any country. We quote below some bits of wisdom from the book:—

“No one who wishes to keep abreast of the advances in Veterinary Science can afford to neglect the regular reading of the professional journals. They record for him, and thus enable him to benefit by the results of the experiences and researches of others, at home and abroad.

If an accident should occur during an operation, and the patient be injured to the detriment of the owner, an action for negligence might follow. The operator is expected to anticipate and guard against all reasonable consequences, but he is not expected to anticipate and guard against that which no reasonable man would expect to occur.

If a member [of the veterinary profession] is called upon to see a sick animal which is already in the care of another Veterinary Surgeon, he should decline to attend except as a consultant. If, however, the Veterinary Surgeon conducting the case, refuses a consultation, and the owner states that he no longer desires his services, the member called in may agree to attend on condition that the first member is informed in writing that his services will no longer be required. In such cases the hint may not be out of place to inquire whether the client has yet

paid the fees of the practitioner first called in. It is not unknown that some persons determine to change their Veterinary Surgeon when he begins to press his fees.

The owner of a sick or injured animal is usually impatient to know at once what is the matter, but the young practitioner will be well advised in any difficult case to wait for the development of more certain symptoms before coming to any decision. There is no compulsion to express a decided opinion on the spur of the moment.

In the capacity of a witness to facts it is improper to express any opinion on the facts; it is for the court to form an opinion or to draw a conclusion from the facts proved. If called as a common witness, therefore, he should, as a rule, refuse to express an opinion if Counsel should ask for it. It may, however, well be that the matter on which his professional opinion is desired is plain and simple, and in such a case, if Counsel presses for an opinion, it may be given. In that event the witness becomes an expert witness. It is obvious, nevertheless, that though the qualified Veterinary Surgeon is an expert on all general matters relating to his profession, yet there will always be special questions on which the general practitioner cannot properly be said to be an expert; and, as it behoves every witness to give his evidence with the utmost caution, if he knows himself not to be an expert on the matter in question, he should decline to express an opinion, giving as the reason that he was not called as, and is not in fact, an expert in this special sense."

Bullock's "Handbook for Veterinary Surgeons", deserves wide distribution among Veterinarians in general.

Veterinary Posology:—By BANHAM, G. A., and YOUNG, W. J.
Sixth Edition. pp. 374 xii. Bailliere, Tindal & Cox, 8, Henrietta Street, xx Covent Garden, London, W. C. 2. Price 8s. 6d. nett.

Banham and Young's "Veterinary Posology" is very well-known to Veterinary Surgeons and Veterinary Students. It is the most useful book in a Veterinarian's library and it will not be too much to say that there may not be a single Veterinary Practitioner or a Student who does not possess this small book.

The very fact that it appears now in its Sixth Edition is a proof of its popularity and usefulness and the present Edition is more valuable than its predecessors, having an additional 15 pages matter containing a table of bacteriological nomenclature, giving both the newer terminology and the older, and to most the more familiar names together with a list of diseases with which they are associated. A table of 48 pages is devoted to various trade names and synonyms for drugs, which will be found very useful to both the students and the Practitioners. A table of composition and nutritive value of the various feeding stuffs will

prove a ready reference to those who are concerned in the know of protein ratios and 'balanced' rations.

Though this is a small book, it contains full of information on various subjects, to which the practitioner constantly turns over for refreshing his memory.

Though there are certain drawbacks which cannot be avoided in such a small book, we hope the further Editions will be rendered more useful. While reading through the 'Table of Diseases and suggested therapeutics', we find the most up-to-date and daily used drugs not mentioned therein. For example we are making free use of Hexamine in our daily practice in treating cases of cystitis or nephritis, but it is not there and agents universally acknowledged to be specific for certain diseases are given the last place as Calcium therapy in parturient apoplexy. We hope these drawbacks will be rectified in the further editions.

We highly recommend this little useful book to find a place in every Veterinarian's library.

Anubhava Pasuvydy Chintamani in Telugu :—

By Dr. Yejella Sreeramulu Chowdari, P. O. Angalur, Kistna

District. Madras. (India) Price Rs. 4/- (pp. 30—488)

Anubhava Pasuvydy Chintamani is a most welcome Telugu work on cattle, their diseases and treatment. The author is Dr. Yejella Sreeramulu Chowdari, Founder and Veterinary Doctor in charge of the Ayurveda Veterinary Hospital and School in Angalur, Kistna District. He has published several other works in Telugu such as Pasuvydy Vastugunadeepika, Pasu Netra Chikitsa, Pasu varana Chikitsa, etc. He has also promised to publish Pasuvydy Sastra by Sahadeva and Aswavydy Sastra in Telugu. The present work is a practical treatise, illustrated, with exhaustive information on several important points generally not dealt with in books written in Indian languages. The first chapter deals with maintenance of cattle, cattle-dealers, pastures and such other introductory matters. The second chapter deals with important points of cattle in health and what the stock-owners and the doctors should observe in dealing with cattle. The third chapter deals with the various breeds of cattle. The fourth one deals with anatomy and physiology—rare things in the books of this kind in the local languages but very important subjects which every stock owner should know. The fifth chapter deals with the normal condition of cattle and the deviation from this with a view to help the diagnosis. It also gives information as to the different forms and modes of administering medicines. The sixth chapter deals with the disease of blood and the seventh with obstetrics. The eighth chapter deals with the diseases of alemantry tract, liver, etc. The ninth deals with the various diseases of the nervous system. The tenth is devoted to diseases of respiratory system. The eleventh deals with those of the head and the twelfth with the diseases of eyes. The

thirteenth chapter deals with diseases of urinary system. The fourteenth chapter is devoted to the Oedematus and other swellings of various parts or organs. The fifteenth chapter deals with the various growths, tumours and neoplasms. The sixteenth chapter deals with the maintenance of milch cattle and the several diseases affecting them. In the course of this chapter, the milk, its several products, the milkmen and the vessels also receive attention. Treatment of wounds is dealt with in the seventeenth chapter. Feeding and rearing of calves receive attention in the eighteenth chapter. Their diseases also are dealt with in the same chapter. Diseases of throat, ears and teeth are dealt with in the nineteenth chapter. Diseases of locomotor system dislocations and fractures, are dealt with in the twentieth and twenty first chapters respectively. Castration by Burdizzo and other methods is dealt with in the twenty-second chapter. Criminal poisoning, its diagnosis and treatment are also found in the same chapter. Skin diseases are dealt with in the twenty-third chapter. Reptiles including various poisonous snakes and insects and their bites are dealt with in the last and the twenty-fourth chapter.

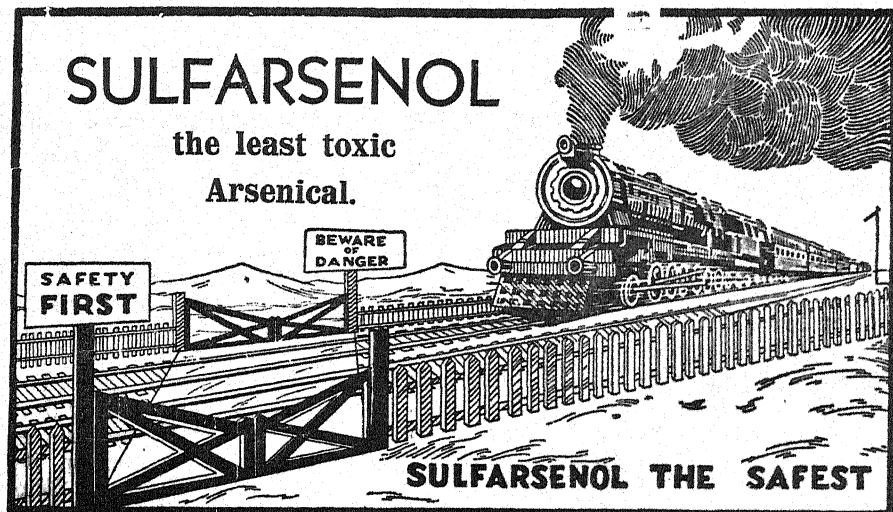
The author while dealing in all these aspects has adopted what is best both in the ancient Indian system and modern Allopathy, in his experience. He is himself an agriculturist, and has devoted much of his time, energy and attention to improving, treating and maintaining cattle. He has also been training a number of rural veterinary practitioners in his veterinary School at Angalur. An addition of a glossary of several Telugu names of each drug would prove very useful as one and the same drug is known by different names in different parts of the country. This book is a store house of useful veterinary knowledge and should therefore prove of great practical value to every Telugu knowing stock-owner, veterinary student and practitioner. This book further proves—if proof is ever required—that it is quite possible to write works in Indian vernaculars on modern scientific subjects, for the benefit of the vast number of people in this country. If this country should derive benefit from the modern veterinary science, a number of such books in the local vernaculars and workers of the type of Dr. Yejella Sreeramulu Chowdari should come up all over the country.

This book in Telugu deserves to find a place in every library, school, panchayat and co-operative society. We have great pleasure in recommending this also to every Telugu knowing Veterinary practitioner and student, to include it in his library.

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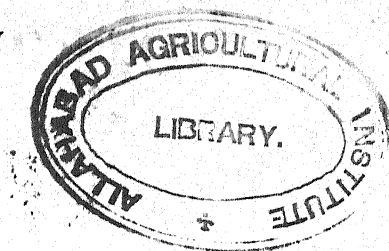
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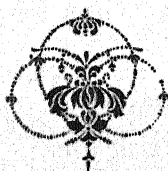


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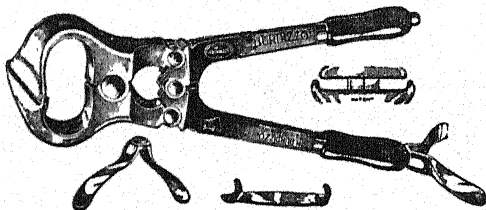
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THE
INDIAN VETERINARY JOURNAL.

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Editorials.

VETERINARY EDUCATION IN INDIA.

(II)

"A sum exceeding two thousand crores of Rupees—this is the estimated annual cash value of India's animal products. The figure may indeed appear to be incredibly high; in fact it is probably larger than the value of her cash crops. But India possesses a far larger number of animals than any other country in the world" says a press note issued by the Director of Public Information, Simla.

He further says "The total is over 300,000,000 or nearly double that in the United States of America. These are some of the facts which make it abundantly clear that the development of animal husbandry work in India might go a long way in solving the economic difficulties of the country and how correct the Viceroy was when he said, presenting three pedigree bulls for use in the Delhi District, "The cow and the bullock have on their back the whole structure of main agriculture". These are extracts from the official records. Thus while India stands highest in the matter of world's

cattle population her sheep population is nearly double that in the United Kingdom.

When the United Kingdom, U.S.A., and other countries have a number of their own veterinary educational institutions manned by their own people and where according to them, the highest standard of Veterinary Education is available, what has India done or what has been done for India in this matter? She has been told by her Veterinary Experts to depend for ever on the British Veterinary Colleges in the United Kingdom for her supply of Veterinary Surgeons, majority of whom are just out of the colleges, to look after the interests of the Indian cow and the bullock, which bear the whole structure of Indian agriculture. When the country clamoured for raising the standard of Veterinary Education in this country, these Experts, instead of raising the standard of Veterinary Education in the existing Provincial Veterinary Colleges, have recommended that a branch Research Institution and the Serum producing station at the foot of the Himalayas should be converted, at an enormous cost, into a Higher Grade Central Veterinary College to train up annually only about 10 men for this vast country. One of the reasons put forward for this proposal is that the Provincial Governments did not develop their own Veterinary Colleges to the standard set up by them. This statement is not quite correct. At any rate so far as Madras is concerned, her Minister was quite willing to find funds, etc., to extend the course of Education in the Madras Veterinary College to one of four years (then the R. C. V. S., course was one of 4 years) in 1927, but he was advised by the then Veterinary Adviser to the Government of Madras to wait for the recommendation of the report of the Royal Commission on Agriculture in India then under preparation. This adviser and all his European colleagues, who gave evidence before that Commission on behalf of the Indian Veterinary Profession probably knew what the recommendation in the report would be, and the Minister's proposal might be shelved in course of time. It happened exactly as was anticipated then, and no wonder!

When countries smaller in area under cultivation and live-stock population than India have got many Veterinary Colleges to

give the so-called highest Veterinary Education, the British Experts in India with a few exceptions, have totally failed to impress on the authorities to make adequate provisions at least in the major Provinces in this country; on the other hand some of them have put forward proposals to continue to maintain the positively deplorable state of affairs. The Experts in other professions and departments even in this country have to their credit the development of Educational Institutions to impart the highest standard of training in their respective professions but the same cannot be said so far as Veterinary Experts and Veterinary Education are concerned in this country !

Each country has her own peculiar problems so far as every profession is concerned and to suit these problems educational curricula have been framed everywhere (except in India). Sir Arnold Theiler has said this in a telling manner at the time of starting Veterinary Education in South Africa. The same thing has been said on many different occasions by different eminent men in different countries. But it is unfortunate that the Veterinary Experts in this country care not to appreciate this as regards Veterinary Education in India, apparently for selfish reasons, else why should these Experts try to keep the Indian Veterinarian always tied to their own apron strings? No other civilised country has neglected the Veterinary Education to the extent to which it is done in this country. We have said times without number that the Veterinary needs of the country are as great as any other. The animal health and the animal wealth are closely linked with the public health and the national wealth. It is a great reproach therefore that, while other professions and departments have provided for the highest professional training, almost in each of the provinces, the Veterinary profession alone should be asked to be content with a lower standard of Veterinary Education in the Provinces.

It is often-times said by the advocates of the present system that the country cannot afford to have highly trained Veterinary Surgeons in large numbers, because they have to be paid more. It is conveniently forgotten that the country's interests cannot be long neglected by considerations of such false economy. It is surprising that such an argument should be advanced only in the



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Dairy, Cattle Farms, Cattle Fairs and Shows, Grass Farms, etc., are concentrated into one comprehensive activity of Animal Husbandry, on the lines which have been so successfully followed in preeminently successful agricultural countries such as Denmark, the United States of America, New Zealand, Australia, the Union of South Africa and all other important British Colonies in which for years past all Animal Husbandry work has been under the sole control of an Animal Husbandry Organisation devoted entirely to the interests of live-stock and to the development of Animal Industry. Though the idea of forming an Animal Husbandry Department in Jodhpur was conceived as far back as March 1933, yet it was not until August, 1936, when the thread was picked up by the present Chief Minister, Lt. Col. Sir Donald Field that the Department was finally established with the appointment of Dr. C. J. Fernandes as its Director.

The activities of the Department are subdivided under the major heads :—

(a) *The Live-Stock Improvement Section*—which will concern itself mainly with the improvement of cattle breed in villages and encouraging the maintenance of better stock by awakening interest through fairs, shows and demonstrations. There will be a Cattle Breeding Research Station at Jodhpur to maintain and improve Pedigree Sires. The Nagour Farm at Nagour will devote its attention mainly to improve the Nagour breed. 100 pedigree bulls will be distributed free, every year in rural areas, with a view to develop local breed, to suit local needs whether for working capacity, or for speed or for dairy purposes. The service of these bulls will be free but for selected cows only. Their selected progeny will be duly registered and vaccinated against rinderpest, free of cost. All inferior males will be castrated by bloodless methods. Jagirdars have also been approached to obtain pedigree bulls and to maintain them in their villages at their expense under the supervision of the Department. To guard against stray mating, all undesirable Brahmani bulls will be segregated in the reserved area at Pali in the Brahmani Bulls Segregation Depot of the Department. In future all bulls intended for dedication will be duly inspected by the Department.

(b) *The Disease Control Organisation*—In addition to the existing Veterinary Dispensaries, three more will be opened this year in the three cattle breeding districts, viz. at Nagour, Sanchor, and at Barmer. The policy of this section is to see that in course of time one Dispensary with one Veterinary Assistant Surgeon is provided in each district. Besides these, there will be two touring Dispensaries. Serum Simultaneous inoculation and Goat Virus vaccination against rinderpest have already been introduced.

(c) *The Disease Investigation Section* under a fully qualified Bacteriologist and experienced Research Officer will concentrate its attention on the systematic investigation of local conditions with regard to diseases of the livestock and the preparation of various sera and vaccines.

(d) *The Fodder Organisation* has for its object, the making of hay, etc., a provision against fodder famines, experimenting and cultivating new grasses and reserving areas for grazing purposes in every village. An assistant who is a Graduate of the Wye College, London, has already been appointed to work in this section. The area of grass fields at present is 15,113 acres, and it is hoped to increase it by 6,754 acres within a short space of time.

(e) *The Dairy Section* under a Dairy Technologist will have a Model Dairy Farm with a cattle Breeding Research Station in Jodhpur where pedigree bulls will be bred and distributed among cattle breeders. The milk and other products obtained will be handled on hygienic lines and supplied to the public.

(f) *Cattle Fairs and Shows*. This section will organise Cattle Fairs and Shows which will form an important part of the activities of the Department. There will be three Fairs and Shows in a year, there being one at Nagour, the other at Tilwara and the third at Parbatsar.

(g) *The Propaganda Bureau* will bring home to the peasant the activities of the Department, through demonstration, collection and dissemination of information concerning cattle breeding and allied subjects, the standardizing of methods of milk recording,

maintaining of herd books, and instructional class and encouraging the use of Pedigree stocks.

NEW YEAR HONOURS.

Our hearty congratulations to the recipients of the following New Year Honours :—

(1) *Rao Sahib* on Mr. M. Anant Naryan Rao, Lecturer in Parasitology, Madras Veterinary College.

(2) *Khan Sahib* on Mr. Saiyad Mubarik Ali Shah, Superintendent, Civil Veterinary Department, N. W. F. Province.

(3) *Khan Sahib* on Chaudhri Abdul Ghani, Veterinary Deputy Superintendent, Biological Products Section, Imperial Veterinary Research Institute, Izatnagar.

(4) *Khan Sahib* on Mr. Saiyad Ghulam Hussain, Deputy Superintendent, Civil Veterinary Department, Rohtak, Punjab.

(5) *Kaiseri-i-Hind Medal (Third Class)* on Mr. Hemchandra Das Gupta, Veterinary Inspector, Bakarganj circle, Bengal.

(6) *Kaiseri-i-Hind Medal (Third Class)* on Mr. Saingye Dorzie Gowloog, Veterinary Assistant Surgeon, Kurseong, Bengal.

RAO SAHIB M. ANNAT NARAYAN RAO, G. M. V. C.,

Madras Veterinary College, Madras.

Rao Sahib M. Anant Narayan Rao is the son of the late Rai Bahadur M. Raghunatha Rao, a pioneer educationist. He graduated from the Madras Veterinary College in December 1910, and his career as a student was brilliant. He was taken on the staff of the College in August 1915, and he has fully justified the selection, he being one of the best teachers there. He has had Post Graduate training in Elephant Diseases in the Forest Department, Bacteriology at the King Institute, Guindy, Pathology at the Madras Medical College and Parasitology at the School of Tropical Medicine, London. His valuable work in the field of Research is

well-known in India as well as outside this country. He was awarded the Silver Jubilee Medal in 1935.

**KHAN SAHIB SAIYAD MUBARIK ALI SHAH, B. Sc. (Hons.),
M. R. C. V. S. (Lond.)**

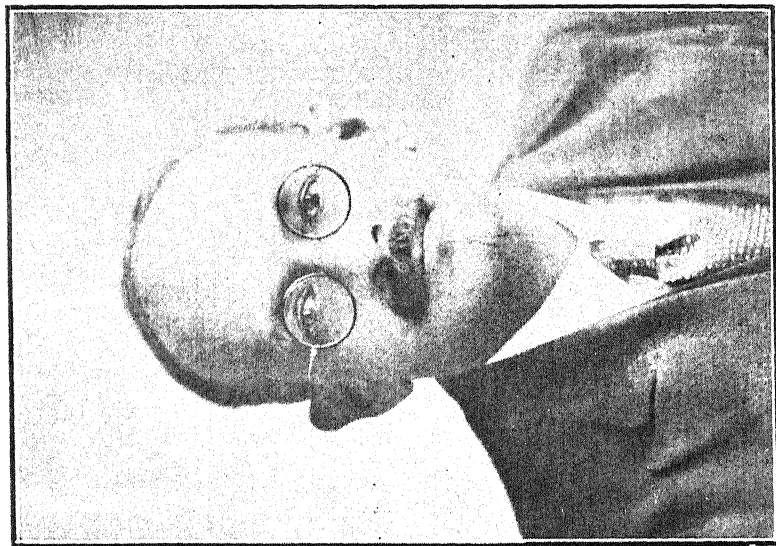
*Superintendent, Civil Veterinary Department,
N. W. F. Province, Peshawar.*

The Khan Sahib S. M. Ali Shah is the son of Khan Bahadur Saiyad Mahtub Shah, late Professor of Anatomy, Punjab Veterinary College, Lahore. He Graduated in Science—with honours—from the Punjab University in 1919. He was awarded State Scholarship in 1920, by the Government of India for study at the Royal Veterinary College, London, where he passed with honours in many subjects. He took additional courses and passed in Veterinary Anatomy, Physiology and Biology at the University of London.

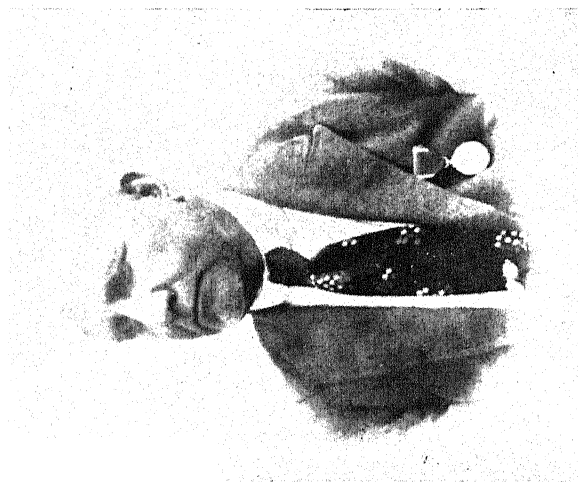
On his return to India, he was appointed to the Civil Veterinary Department, Punjab, and later as Superintendent, Civil Veterinary Department, North Punjab and North-West Frontier Province. In the Dhani tract he drafted the scheme to encourage the keeping of good cows which is still in vogue there and has contributed to the improvement of stock.

He was nominated by His Excellency the Viceroy and Governor-General of India to be a member of the Advisory Board of the Imperial Council of Agricultural Research from the date the Council was constructed. He was the first Indian Veterinarian appointed to that rank. In 1932, he was deputed to the Imperial Veterinary Research Institute, Muktesar. In 1933, he was appointed Assistant Superintendent Stock, Government Cattle Farm, Hissar.

In inaugurating and consolidating the veterinary work in North-West Frontier Province, he has on several occasions been congratulated by the Government of that Province.



RAO SAHIB M. ANANTNARAYAN RAO, G.M.V.C.,
Lecturer in Parasitology, Madras Veterinary
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KHAN SAHIB CHAUDHRI ABDUL
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KHAN SAHIB CHAUDHRI ABDUL GHANI G. P. V. C.,

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Khan Sahib Chaudhri Abdul Ghani graduated from the Punjab Veterinary College, Lahore, in the year 1904, with a distinguished career as a student. He possesses active habits and a special aptitude for laboratory work. After graduation he was selected by Col. Holmes for service at the Imperial Bacteriological Laboratory at Muktesar. The Khan Sahib had the chance to work with almost all the Directors of the Institute and he can be rightly regarded as one of the pioneers of Indian Veterinarians who witnessed the early spade work at the imperial Bacteriological Laboratory. He was promoted to the gazetted rank of Veterinary Deputy Superintendent in 1930, which post he still holds. All the Officers who have undergone Post-Graduate training at Muktesar will remember our Khan Sahib and his hospitality. He was awarded Silver Jubilee Medal in 1935, in recognition of his valuable services.

General Articles.

A GUIDE TO THE STUDY OF THE CELLS OF THE BLOOD,

BY

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The following questions have been devised by the writer to assist the Student of hæmatology, clinical hæmatology, pathology, and parasitology in the cytological examination of samples of blood. The questions are designed to cover the examination of a wet film, hanging drop, or hæmocytometer preparation; and also of a dried fixed and stained film of blood.

Attention is drawn to the cells and to the significance of changes in their numbers, relative proportions and structure; also to the possible presence of immature forms in the circulating blood.

The question of the origin and destiny of the cells is considered together with the effects upon the animal body which the observed changes may induce, and of the abnormalities with which changes in the cells may be associated. The question of remedies is raised. Thus the questions range over the cytology—normal and abnormal—of the blood; the pathology of the diseases in which significant changes occur in the cells of the blood; the consequences of such changes together with the function and fate of the cells and the abnormalities which may be observed in connection with those functions etc., The possible occurrence of parasites in the blood is also considered. Thus the questions will be of service to the student of hæmatology, physiology, pathology, protozoology and parasitology.

The preparation of blood should be placed under the microscope and examined with a view to answering the relevant questions one by one—the other details required e. g. as to the function or fate of the cells should be sought in appropriate text-books or lecture-notes. The general condition of the animal from which the blood sample was taken must also be considered apart from as well as together with the examination of the blood samples. The questions will be found useful in drawing up a report upon a cytological examination of a sample of blood or in compiling a case-record so far as an examination of the blood may assist such a purpose.

It is essential that blood preparations be made carefully to avoid injury to the cells and for this purpose the film spreader described in an earlier issue of this *Journal* (*Matheson 1*) may be employed. For the collection of a sample of blood for bacteriological examination the cotton-wool swab (*Matheson 2*) may be used. Details as to the method of inoculating a tube of culture medium will be found described in an earlier number of this *Journal* (*Matheson 3*),

The Questions.

1. What is the average number of the red blood cells per cubic millimeter of blood in man, dog, cat, horse, mule, ass, ox, sheep, pig, goat, rabbit, fowl, guinea-pig, mouse, rat, frog?

2. What is the average number of white blood cells per cubic millimeter of blood in the above animals?
3. How are the white blood cells classified?
4. What are the average numbers of the different types of white blood cells per cubic millimeter of blood in the above animals?
5. What are blood platelets?
6. What are the functions of the red blood corpuscles?
7. What are the functions of the white blood corpuscles?
8. What is known with regard to the functions of the blood platelets?
9. How may the functions of the cells be modified or impaired?
10. What is the significance of such alterations in the functions of the cells?
11. What are the consequences to the animal body of such modification or impairment of the functions of the cells of the blood?

In connection with the examination of the blood by the use of the hæmocytometer, notice :—

1. Alterations in the numbers and proportions of the cells.
- A. Is there evidence of subtraction from the normal numbers of the normal cells if so :—
1. Why have the cells gone?
- Perishad :—Why? Destroyed :—How? Not supplied :—Why not?
2. Where have the cells gone?
Consider the destiny of the cells of the blood,
 3. Has the subtraction been made from the total number of the cells or from the total number of a particular type of cell.

4. What are the possible consequences of the absence of these cells from the blood?
5. How may those consequences be remedied?

B. Is there evidence of addition to the normal numbers of the cells, If so :—

1. Under what circumstances may such an addition occur?
2. What sort of cell has been added to the blood?
3. From whence have come such cells?
4. What does their presence in the blood signify?
5. What is the destiny of such cells?
6. What are the consequences of their presence in increased numbers in the blood?
7. How may those consequences be remedied?

C. Are abnormal forms present, if so :—

1. Are they abnormal red blood cells?
2. Are they abnormal white blood cells?
3. Are they abnormal blood platelets?
4. What is their number per cubic millimeter of blood?
5. What is the proportion of these abnormal forms in relation to the proportion of the normal cells?
6. Under what circumstances may such an addition occur?
7. What sort of cell has been added to the blood?
8. From whence have come such cells?
9. What does their presence in the blood signify?
10. What is the destiny of such cells?
11. What are the consequences of their presence in the blood?
12. How may those consequences be remedied?

In connection with the examination of a dried, fixed and stained film of blood. Notice:—

1. The normal cells.
2. The presence of abnormal cells.

Notice abnormalities in size, shape, structure, contour, contents, composition, arrangement. Staining reactions, character of the nucleus etc. Notice any evidence of immaturity in the cells,

3. Alteration in the proportions of the cells of the blood.
 1. Is there any evidence of a reduction in number of some of the cells, if so
 - a. What type of cell is missing?
 - b. Why are such cells absent?—Not supplied? destroyed? etc.
 - c. Where have the cells gone?
 - d. What are the consequences of their absence?
 - e. How may such consequences be remedied?
 2. Is there any evidence of an increase in the number of some of the cells, if so:—
 - a. What type of cell is increased in number?
 - b. Why are such cells present in additional numbers?
 - c. From whence have come such cells?
 - d. What are the consequences of their presence in increased numbers?
 - e. How may such consequences be remedied?
4. Why is the differential count so important in the examination of the cells of the blood.
5. If there be parasites present in the blood.
 1. Intracellular.
 - a. In the red blood corpuscles.
 - b. In the white blood corpuscles, etc.
 2. Extracellular. In the plasma:—
 - e. g. (a) Bacteria
 - (b) Protozoa
 - (c) Vermes, etc.

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RINDERPEST—ITS POST-MORTEM APPEARANCES

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The digestive tract of an animal being the chief point of attack in Rinderpest, it is obvious that the post-mortem lesions will be confined mainly to the organs of the digestive system. Abnormal conditions of the organs of other systems frequently obtain, being attributable directly to Rinderpest and indirectly to the complications occurring before death during the course of the disease. Just as the ante-mortem symptoms vary in intensity according to the species of the animals affected, their degree of susceptibility, and severity of attack, so do the post-mortem appearances vary in degree of intensity and involvement of the organs of different systems according to the species and breed of animals affected, virulence of the disease, and stage and conditions under which death may occur. The post-mortem appearances, as they are observed in most cattle and buffaloes, will be described in detail in this article.

A general inspection of the carcase before it is opened will reveal the emaciated condition of the animal, its sunken eyes with accumulation of semi-dried discharge in the inner canthus of the eyes, the nostrils containing muco-purulent discharge and lips covered with tenacious mucus and saliva. The tail will be soiled with diarrhoea and the anal region also soiled with dried faeces. The mucous membrane of the rectum will be congested and there

may be slight eversion present. The abdomen will be tucked up in a fresh case and in animals that may have died of prolonged attack bed sores may be present.

In the mouth specially in the mucous membrane of the lips and gums and under the tongue, on the dental pad, and sometimes on the hard palate and cheek, greyish pin-head size vesicles and tiny ulcers will be seen and in some cases large sized ulcers, which are formed by a coalescence of many small ulcers, may be observed more often on the gums and lips. In animals that may have died of a chronic attack, the ulcers may be found in a state of healing with bran like deposits on the gums and lips.

The pharynx will be deeply congested and may contain vesicles and ulcers and at times a thick diptheroid deposit.

The oesophagus is usually normal ; occasionally a few ulcers may be observed along the length of the mucous membrane particularly at its upper portion.

The rumen very seldom shows any change. In chronic attacks the mucous membrane may present slate coloured appearance and be easily detached. Reticulum is usually not affected. The omasum or third stomach may contain very dried food and the mucous membrane as in the case of rumen will be easily detached in some cases.

The abomasum or the true stomach is invariably affected in this disease. It may contain a small quantity of tenacious mucus and will present a congested appearance, the shade of which will vary in different parts of the organ according to the intensity of the infection. The shading will be pure brick red to dark brown and the congestion will be usually more intense in the pyloric region. The congestion is also pronounced on the folds of the mucous membrane particularly on the ridges. There will be general oedematous condition of the lining membrane. Plate like deposits may be found on the folds of the mucous membrane and to her parts which are usually circular and of the size of hemp seed and even larger. These are loosely attached at their borders and are non adherent at the centres. When rubbed off, they leave

depressions of slight red color. A few ulcers may be observed in the mucous membrane which resemble those seen in the pharynx and buccal membrane. In animals that may have had a chronic attack and died of debility, healed ulcers in the form of roundish depressions will be observed often at the pyloric region.

The small intestines like the abomasum are invariably affected. Acute infection is marked by intense congestion of the mucous membrane along the whole length of the canal and in less acute cases the hyperaemic condition will be slightly less pronounced and may be observed in patches. The oedematous condition of the mucous membrane occurs usually in acute attacks and in such cases caseous deposits may be observed in the duodenum, jejunum and ileum, which when rubbed off will leave slight depressions. The Peyer patches are congested, swollen, and slightly elevated above the surrounding tissue and even dirty grey caseous deposits may be observed on and round them. Careful examination is necessary to detect the inflamed and raised condition of the patches and the lesion being invariably present in Rinderpest to a greater or less degree, may be considered almost diagnostic of the disease. In very few cases small growths of the size of small buttons containing grayish yellow caseous material were observed at Muktesar and the condition resembled to a certain extent the lesion in the intestines occurring in hog cholera.

The large intestines are also frequently affected but the lesions are much less pronounced than those of the small intestines. The congestion is less intense and in patches along the length. The caseous deposits are seldom seen. The mucous membrane of the rectum presents a peculiar appearance the congestion occurring in the form of deep red stripes along the transverse folds; these are called "zebra marks" and are considered by some Veterinarians as a very characteristic feature of Rinderpest.

The liver shows parenchymatous or fatty degeneration; the gall bladder is distended and contains thin green or yellow or even dirty grey bile. The mucous membrane of the gall bladder may be inflamed and contain vesicles and ulcers and at times a few necrotic patches.

The spleen is usually in normal condition; very rarely it may be enlarged.

The kidneys may show fatty degeneration and the mucous membrane of the hilus of the kidneys and of the urinary bladder may present small hæmorrhages and a certain amount of catarrhal swelling.

The larynx is slightly congested. The trachea is usually normal. The bronchi are usually normal but sometimes it may be filled with a pale yellow gelatinous exudate. The lungs are occasionally affected and may show hyperæmia and contain scattered areas of catarrhal pneumonia.

In the heart hæmorrhages may be found on the epicardium and under the endocardium. The organ is flabby and the muscles are friable and of a grayish brown colour. The blood is dark red and partially coagulated.

The lymph glands may be slightly swollen particularly those in the mesentery and their tissue reddened and moist.

The brain and the cerebral meninges usually present a normal appearance; occasionally slight congestion may be found.

It should be understood that the appearances described above will not be observed in every case but represent practically the sum total of the conditions observed in most post-mortems of cattle that may have died of fairly severe attacks. The lesions in the individual cases depend upon the stage and conditions under which death has occurred. For instance, a bull which has died of a fairly severe attack but was bled previously for virus or any other purpose, may present post-mortem appearances in which the reddening of the mucous membrane may be less intense. Again in cases where deaths have occurred at an early stage several lesions may not be present particularly the ulcerated and diphtheric condition. The appearances in these cases will be an intense congestion of the mucous membrane of the digestive tract, specially in the abomasum and the small intestines. The subject, which can furnish study of most of the above described

post-mortem lesions particularly of the digestive system is a bull of a high susceptibility such as the himalayan type which has died of Rinderpest after a severe attack about the twelfth to the fourteenth day from the date of inoculation and has not been subjected to the operation of bleeding.

A few contagious and non-contagious diseases present post-mortem appearances, which resemble those of Rinderpest and as a Veterinarian has frequently to make an autopsy as a means to ascertain the cause of an epidemic, it may be worthwhile to describe here briefly a few points of resemblance and also of difference. The post-mortem appearances in a case of Hæmorrhagic Septicæmia, for instance, resemble those of Rinderpest specially the congestion of the mucous membrane of the digestive canal. In Hæmorrhagic Septicæmia the congestion is intense and diffuse in the abomasum and small intestines and gives the appearance of a red paint being applied to them. In Rinderpest, the intense congestion is patchy particularly in the stomach and is more pronounced at the pyloric end and on the ridges of the folds. The absence of the vesicles and ulcers and diphtheric condition in H. S. is an important point of difference.

Another disease which can be mistaken for Rinderpest is Piroplasmosis. In this also the reddening of the mucous membrane of the digestive tract is pronounced but it is not so diffuse as in H. S. . The points of difference are that several hæmorrhagic spots circular and of various sizes, are frequently present in the small and large intestines ; the intestinal contents are mixed with dark red blood and the characteristic vesicles and ulcers of Rinderpest are absent.

In cases of gastro-enteritis, caused either by chill or irritants taken internally, the points of difference are the absence of the vesicles and ulcers in the mouth and pharynx and the caseous deposits in the intestines.

At times it will be found difficult to arrive at a positive diagnosis of Rinderpest. In such cases the symptoms before death, the virulence of the epidemic, its history, and other necessary information will have to be obtained and considered before a positive

diagnosis can be made. Even inoculations of susceptible animals with the peritoneal fluid or spleen tissue may be necessary to dispel any doubts.

As Rinderpest outbreaks are not uncommon among sheep and goats in India and the goats particularly are being largely employed for virus production, it will not be out of place to describe herein the post-mortem appearances in animals dying of Rinderpest.

Carcasses dead of Rinderpest are greatly emaciated; the eyes are sunken the lips are covered with tenacious mucus and saliva; the nostrils are covered with a thick muco-purulent discharge with incrustation and sloughing. The anal region will be soiled in most cases with dried faeces and at times with diarrhoeic faeces.

There is slight reddening of the mucous membrane of the gums and lips, and the hard and soft palates may show a deeper tint of red at the posterior portion. The pharynx is deeply congested and may contain a few ulcers and aphthous deposit. The oesophagus, rumen, reticulum and omasum are usually normal. The abomasum is invariably affected and may present evidence of deep profuse congestion, which is more marked at the pyloric end. Ulcers diagnostic of Rinderpest are rarely seen; those commonly found are the type of 'grass ulcers'. The small intestines are frequently affected and will present marked congestion particularly in the duodenum. Ulcers and caseous deposits have not been observed. In the large intestines, the congestion is less pronounced and patchy. The gall bladder is distended with dark green bile and the mucous membrane of the genital organs is congested. The larynx, trachea and small air passages are congested and may contain a large quantity of froth. Both the lungs show distinct stages of pneumonia; all the lobes, especially the anterior and cardiac, are consolidated and the cut surface of this area is moist and exudes a serous fluid; the pleura is congested and thickened; fibrinous deposit and adhesion are occasionally seen and the thoracic cavity may contain 50 to 100 c. c. sero-sanguinous fluid. The pericardium may be congested and the sac may contain a few c. c. of serous fluid. The heart is usually normal.

FEVERED FLESH.

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The meat which the inspectors designate as 'febrile' is that which has undergone certain changes characterised by alteration in the colour of muscles, infiltration of the inter-fascicular connective tissue and a peculiar odour. As a rule, a rise in temperature or pyrexia causes changes in flesh which are practically identical with those commonly found in fevered flesh. This fever is generally due to the presence of toxins of bacterial origin, but the so-called 'febrile' or 'fevered' flesh does not necessarily come from animals suffering from elevation of temperature. It must be noted that the clinical appearance of fever was formerly regarded as a sign of importance in the evaluation of flesh. This standpoint, however, is no longer tenable. It is not the fever which is of importance, but the nature of the disease which causes the fever, because fever is a symptom of many diseases which differ in their sanitary importance. In France the term 'febrile' flesh (*viandes fievreuses*) is used in meat inspection to describe salmon-coloured flesh of a peculiar odour and soft consistence.

As a rule, when the flesh of a carcass is fevered, the carcass would not have bled properly and consequently the small vessels may be full and very much injected, and the large ones may contain imperfect and dark-coloured clots. When first cut, muscles show small hæmorrhages in their substance and are reddish brown or dark in colour due to high blood content, and turn pink on exposure to air. This is more often seen in hind quarters. The oedematous infiltration of inter-fascicular and inter-muscular connective tissue makes the meat soft, flabby and sticky and soapy to touch. On section one may see a slow exudation of pink clear serum. The capillaries are engorged due to imperfect bleeding; this is better seen in the shoulder and flanks. The pleura and peritoneum have a dull leaden colour. The fat in the carcass varies—in some it is firm and pink and in others soft and white. The odour is peculiarly disagreeable and sour. It is best felt when shoulder is cut. It passes away on exposure. The

vertebræ are of an un-natural brown colour when sawn down, but get brighter on exposure. The flabbiness of the carcase is best shown by the muscles bulging out over the pubic symphysis when the hind quarter is hung up by the hock; the fore-quarter also admits of easy movement on the trunk due to the soft state of the muscles. The flesh has a sticky, soapy or albuminous feeling that is best felt at the newly-cut surfaces. Microscopically, the fibres show cloudy swelling, striæ disappear, nuclei stain badly and there may be an infiltration with leucocytes. Some organisms may also be found, as *Bacillus coli*, Paratyphoid and *Bacillus enteriditis* (Gaertner), *Staphylococci*, *Streptococci* and certain specific organisms, like *Bacillus anthracis*, *Bacillus* of Swine Erysipelas, etc., especially in the pulp of the lymphatic glands. According to Cesari and Panisset*, diseases causing 'febrile flesh' fall into two groups: septicæmias (anthrax, ery-sepelas, acute inflammation of the abdominal organs, such as peritonitis, enteritis and dysentery) and pure muscular changes. In the latter, coli bacteria are nearly always present.

*² Langrand, while working in the Laboratory of the Central Meat Markets of Paris, found that attempts to make bacterial cultures from fevered meat proved abortive, inspite of the fact that considerable quantities of tissue were used. Nor, was it due to any acidity of the culture medium, and ærobicity or anærobicity of the surroundings of the media played no part. From this it follows that the hypothesis that putrefaction is the cause of the alterations in fevered meat is untenable. Again, the changes brought about by putrefaction do not resemble fevered flesh. A softening of the tissues, extending from the surface to deeper parts, is one of the constant effects of putrefaction, whether naturally or artificially provoked. Corresponding to the extension of the softening, there is a liquefaction caused by bacteria or their products, but there is no exudate corresponding to that of fevered flesh. In the latter case the reaction is alkaline (ammoniacle) and volatile sulphur compounds are soon evolved. On the other hand, bacterial fermentation is generally accompanied by a more or less active peptonization of albuminoids. In those cases where attempts

* Text-book of Meat Inspection (Ostertag), edited by D. Young. 1934 p. 400

to make cultures failed, no evidence of the presence of peptones was obtainable. Hence, it may be asserted that fevered meat represents a particular pathological entity, in which bacteria play no direct and important role. One might suggest that bacteria are nevertheless responsible for the changes observed in fevered meat, that though not present in the muscular parenchyma, they may exert their influence by means of their toxins through the nervous system, and that the characteristic exudate is the effect of stimulation of vaso-dilators. This probably is not the case; the vascular changes are themselves accessory phenomena.

Intra-muscular serosity, flaccidity of muscle parenchyma, and the intensity of oxygenation of the colouring matter which impregnates the tissue are the more important characteristic features of fevered flesh. The last two characteristics result from the first—the most important of them; indeed, on the one hand, the softness of the muscles, especially that of the quarters, is the result of inter-muscular exudation; on the other hand, the exudate assumes a brighter tint on exposure to air, but the tint is not uniformly distributed. Intra muscular exudation is, therefore, the fundamental character of fevered flesh. This consists in an abundant serosity of more or less intense red colour, which escapes from the muscle when the latter is cut, or which is found accumulated in intra-muscular spaces. It may be recalled here that there exists a close analogy between such meat and the meat that has been submitted to cold storage, particularly that which has been frozen. On cutting into a quarter which, after freezing, has been thawed, one finds abundant exudation and a red discolouration of connective and fat tissues. These characters are sufficient to trouble the inspector and lead him to believe that the meat in question is fevered; but a careful examination will enable him to differentiate between the two conditions. Where meat has been frozen, the exudate is particularly abundant in intra-muscular spaces (around the popliteal lymphatic glands, inside the point of the shoulder, etc.); on section the muscle assumes a uniform red colour; lastly it gives off the characteristic odour which is (peculiar to meat, but in no case is there any aromatic odour which

*² From *L'Hygiene de la Vinade et du Lait*. October, 1910.

is) observed in fevered flesh. Fevered muscle is really an organ profoundly modified; it has lost its physical properties; it has become practically a sponge, swollen with its own juice, which can be expressed from it easily.

There are three types of muscle from the meat inspection point of view—normal, fevered and fatigued—all containing practically the same proportion of water. Nevertheless, their microscopic characters enable one to differentiate between them; fatigued and fevered muscle forming the two extremes, whilst the normal muscle holds an intermediate position. The first is dry, sticky, glue-like, and in consequence appears poor in water, while the second is moist and often allows a considerable amount of serosity to exude from it, even without any pressure. One can only explain this apparent contradiction by assuming that the water contained in equal quantities in the two types of muscle (is found there in two different forms, combined with and enclosed in the muscle) fibres (fatigued muscle) and in the free state and ready to escape (fevered muscle). It is, therefore, a question depending upon the minute structure of muscle fibres. In both cases it is modified, but in definitely different ways. In so far as fevered flesh is concerned, the structural modifications are found to consist of an abundant exudation, accompanied by a more or less marked softening of the tissue. It therefore follows that fevered muscle has undergone a change in its own substance—a true autolysis, the cause or causes of which is or are unknown, but it appears that the mechanism of this is related to physical phenomena, osmosis and dialysis.

Judgement:—All fevered flesh arising of any cause or causes must be condemned without any hesitation, and the entire carcase seized. This is unfit for human consumption even after sterilization. Febrile flesh generally contains febrile principles, like ptomaines, alexins and other complex proteid substances, which are not destroyed by heat in cooking, and this is the reason why fevered flesh is found to be responsible for most cases of food poisoning. In sterilization organisms may be killed but their toxins may not be got rid off. According to Cesari and Panisset, 'febrile flesh' is to be treated as injurious to man, both in the raw and in

the cooked condition and should not be utilised for preserved food. If flesh is found 'fevered' due to some generalised bacterial affection, the very fact of its being of this nature is sufficient to warrant seizure of the entire carcass, whatever the degree of tissue changes may be.

WILD ANIMALS IN CAPTIVITY IN ZOO GARDENS *

BY

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It is a mistake to consider that wild animals in jungles are healthy and free from disease. The healthy wild animals of the jungle are in fact the survivors of the fittest—the sick and the weak, the old and the infirm having died or been killed. It is true that there are fewer diseases in them than in the animals living in captivity; but the former on the other hand are exposed to grave dangers, such as the lack of care in sickness, infirmity and old age, starvation and attacks of enemies, which is not the case with the animals in captivity.

The maximum longevity of life in them is considered to be more or less the same as is the case with the captive animals but it is very doubtful whether they even reach that maximum age. Hegenbeck the great Naturalist and founder of the well-known Hamburg zoo in Germany puts down the average age of a lion or tiger in captivity to 30 years. This is also our experience. To illustrate an example there was a very old lion in the Mysore Zoo about four years ago which was kept in the open paddock in the gardens there, which I am informed had been the inmate of that Garden ever since its inception.

It has been noticed that many wild animals captured only a short time before their admittance to zoo, have been infested with a member of parasites; and these parasites therefore must have possibly existed in them in their wild life, in the jungle, and that

these parasites may have been in the host, when in health, only to give him the final stroke, when the host had become weak or had lost the vitality. Sick animals seek seclusion in their caves or dens and do not freely move about and therefore are not killed by the Shikaries as the healthy wild animals.

Some of the disease conditions are very peculiar to captivity but it is reasonable to assume that many diseases that are found in the wild animals in their captive state in the Zoo, also exist in the wild state. Some of the extinct races of animals may also have been ascribed to this cause. Rinderpest has caused severe losses among the wild animals, and according to the report of the Government Veterinary Surgeon of Ceylon, a large outbreak occurred among the wild pigs in that country in the year 1909.

As the result of captivity many curious physical and mental derangements are seen in the wild animals in the Zoo, and the reason is not far to seek. All such factors as unnatural and unvaried food to which the animals are not accustomed, change of climate and surroundings, fear, weariness, physical and mental degeneration effected by the disuse of muscles and mental powers, and various several other factors react in more or less degree in a harmful manner.

Animals in captive life do not get their natural food. Some of them like the Carnivora may approximately get their natural food, but they get it not in the natural way. There is absolutely no variety of food given to them. For instance they get cut meat only—muscle and bone and not blood, guts and glands. A lion or tiger gets his meat handed to him in regular measured ration. He has no chance to tear down his prey, and the result is that the jaws of the lion or tiger bred in a Zoological garden or Menagerie differ very much in shape and size from the jaws of the jungle bred animals. The zoo animals get their food regularly with the same monotony at certain prescribed and regular hours of the day, say either in the evening or in the morning except for a fast on Sunday once in the week, which is quite necessary for their well-being. Like the animals in the wild state, there is no alternation of feasting and fast. Certain animals

in the wild state are found not to live long in captivity and this is due to their inability to get their natural food in their unnatural condition of life and surroundings to which they are subjected. But there are many others that get used to the new diet and thrive very well in a climate, quite different from their natural habitat. Take the case of Polar Bear from the Arctics. They are doing so well in the Mysore Zoological Gardens, and are one of the most interesting features of that Zoo; so is the case with the Pheasants from the Himalayas like the Monauls, the Black-headed Tragopan and Pokras (or Koklass) from Nepal. These Pheasants thrive very well in Bombay even in the hottest months in March, April and October; of course under favourable conditions of life, environment and surroundings in which they are housed in the Garden.

Deer and Antelopes are noticed to use a particular favourite corner and not the whole paddock, which may be large. The mortality from the cage-mates has not been found to diminish very perceptibly in a large enclosure, for it is always the rule that the stronger follows the weaker, until he gets him, irrespective of the fact that the enclosure may be large. Equally true is the case with the Aviary birds, and it is therefore essential to keep away those birds that are scrappy in disposition.

In captive animals mental disease is a very interesting psychycological study, and there are many conditions prevalent which produce it. What is known as Coprophagy—eating of their own fæces, is very common and it is found chiefly noticeable in the highest apes like the Chimpanzee. Perhaps this condition may be due to some defect in the diet. Eating of fæces is not healthy and does not occur in nature. It is the act of mental aberration.

Killing of the mates during the rutting season and killing of the young ones by parents are some of the insane acts seen in the inmates of Zoo. These acts would probably cause the extinction of the race, if prevalent in their wild state. In the jungle life the male chooses his own mate and therefore does not feel inclined to kill her, which is not the case

in captivity, where a mate is chosen for him and is forced upon him "Willy—Nilly" by his master. The Natural History tells us that a lion chooses his own mate in the wilds and proves to be an ideal husband and a dutiful father to his young ones, attending first to their care and wants. It has also been observed that a male monkey, if put together with several females, shows feelings for one particular female only and ignores all others. By simply putting them in a cage, we cannot mate wild animals and birds, There is a sort of mutual affinity developed.

Another noticeable feature observed in captivity is that the mother devours her young ones shortly after birth. This characteristic is also seen in some of our domesticated animals like dogs and cats.

Certain other insane acts like sucking, gnawing and eating parts of itself or of cage-mates and making a snoring noise which is seen particularly in Bears, and grinding of teeth in Primates are common features in a variety of inmates of the Zoo. All these phenomena are, it is probable, due to confinement, idleness, ennui and want of occupation. These acts, however, do not often occur in nature, for the animals in the wild state are always busy in finding their own food, attending to their mates and fighting and avoiding their enemies &c. It will be seen that the animals in the Zoo are found to be overfed, lazy and indolent. They are found sleeping the whole day in their dens except during the time of feeding, when they show alertness and are active. They practically lead a monotonous life. All these factors react on their physical and mental conditions. An intelligent and sympathetic keeper is a great asset, for he plays with the animals in his charge and thus relieves their monotony. The parents of Carnivora may become quiet and tame in the Zoo, and when called, come to the bars of their cages to be stroked and patted and also fondled; but their young ones may remain wild from birth.

Nostalgia or home sickness is another characteristic of the wild animals and is fairly evinced in birds by their migrating habits at a certain time of the year and by certain birds returning to their original haunts for nesting every year.

Most of the wild animals are found to be sterile in captive life in the Zoo. Whether the fault is with the male or with the female, it is difficult to say. But some families are fertile, even with the unfavourable surroundings and environment; whereas others remain sterile. Axis Deer, Black Buck, Four-horned Antelope, Nilgai, Hog Deer and Sambars are all good breeders. Lions breed fairly well. There are instances in which they have bred twice in a year. Tigers and Leopards are poor breeders. Zebras breed in the Garden. In the Bombay Zoo, the Zebra mare born in the Gardens in the year 1918, is a very fine specimen and it is considered to be the first instance of a Zebra having been bred in this country. Another young Zebra was born in 1930, and is now an inmate of the Mysore Zoo. Among the Marsupials, Kangaroos and Wallabies breed in the Zoo. llamas are also found to breed in captivity; bears and Hyænas breed well but the mother destroys her young after birth. It has been our experience that there is no fixed breeding period in the captive wild animals of the Zoo. The period of gestation also varies in different species.

Each species of animals has its own particular complaints and diseases, its own idiosyncrasies in the way of health, which have to be studied carefully and observed from day to day. In fact the study of natural history, the habits of the animals in their wild state, etc. should form the ground work. Among the principal diseases in Carnivora for instance, Diarrhoea, Dysentery, Paralysis, Skin-diseases, Worms, Liver and other Gastric troubles are the commonest diseases. The infectious diseases met with in the Zoo animals are Anthrax, Hæmorrhagic Septicæmia, Foot and Mouth disease, Rinderpest, Distemper and Tuberculosis &c. Tetanus also occurs in the solipeds and primates of the Zoo. One wild ass suffered from Tetanus in the Gardens in January 1930. The animal was given injections of P. & D's Anti-Tetanic serum and saturated Solution of Magnesium Sulphate. With careful nursing and treatment this animal got over the attack. A clinical lecture was given to the senior students of the Bombay Veterinary College and they were shown the method of control of the wild ass and the line of treatment adopted.

Tuberculosis is found in Monkeys particularly. They live generally in hot humid climate of the jungles, which may possibly be a pre-disposing cause for them to suffer from Tuberculosis, when taken in and confined in captivity. Heat, moisture and humidity seem to agree with them; but the least exposure to cold and damp brings about pulmonary affections, from which they are seldom cured, Deer and Carnivora do not escape the ravages of this disease in captive life.

Plague is another disease which attacks the monkeys in the Zoo; and in the year 1925, there was an outbreak of epidemic amongst them in our Zoo. We used the Haffkine's Anti-Plague Vaccine as a preventive in them with very great success. There are number of other classes of animals which have suffered from and died of plague.

Rinderpest and Foot and Mouth disease affect all classes of Deer and Antelopes. When transporting this class of Bovidae from India to Foreign countries, like Australia and South Africa, a certificate of health is required to be sent along with the stock to show that the stock is healthy and has not been in contact with infectious disease for well nigh six months. In an outbreak of Rinderpest that occurred in our Garden in the year 1928, amongst the Spotted Deer and Black Bucks the use of "serum alone method" saved nearly fifty per cent of the stock. It was a very hard job for me to capture and inoculate these wild deer and with great patience and tact all the animals were inoculated.

Diagnosis and treatment of sick animals of the Zoo is a very difficult problem. In the first place the person in charge must be well acquainted with the study of Natural History, which must form the ground work and he must be in contact with the animals in health and observe them from day to day; as each species of animals has its own peculiarities and idiosyncrasies. I have cases on record, where Sambars in pink of condition and health have been found on destruction to be infected with a generalised form of Bovine Tuberculosis; where as their young ones within a month after birth have not reacted to Tuberculin

Test. I have also a case of a sturdy full grown lion in the pink of health and the father of eight litters in our Garden. This animal got suddenly ill and the only symptoms shown were extreme constipation and torpidity of the liver and it was suspected to be a case of intestinal obstruction. On autopsy after death, what most surprising was that the liver was a full mass of Tubercle. Tubercle lesions were in the mesentery and the right lung was found infected with Tubercular nodules.

From some of the facts related above, it will be seen how difficult is the diagnosis and much more the treatment.

Prophylaxis is our only sheet anchor.

DURATION OF IMMUNITY IN AMRIT MAHAL CATTLE INOCULATED WITH GOAT VIRUS ALONE AGAINST RINDERPEST*

BY

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Dr. Edwards (1927) recorded that by passing virus of bovine origin through goats, introduction of piroplamosis could be eliminated during the serum simultaneous inoculation against rinderpest. Later on, during the course of his experiments he, Dr. Edwards [1928] used anti-rinderpest serum substituting goat virus for ox virus, the dose of serum being the same as in the case of S. S. inoculation with ox virus. Some of these animals were tested for immunity at intervals varying from 12 to 31 months after the initial immunisation and concluded as reported by Banerji [1933] that the degree of immunity obtained with this product is adequate for the purpose of protecting against death from

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rinderpest for a period of at least 31 months and that at 24 months and possibly even at 18 months a certain proportion of these animals can contract the disease in mild form. Subsequently Kerr [1931] in Bengal used goat virus with anti-serum on "plains" cattle. Cooper's [1932] experiments in this connection at Izatnagar in addition to the experience gained by him in two "plains" districts of Bengal and United Provinces indicated that it might be possible to use goat virus as a vaccine or with only extremely small doses of serum. Kerr [1932] and Sterling [1932] in Bengal and Central Provinces dispensed with anti-rinderpest serum and proved the possibility of using goat virus alone. Krishna Iyengar [1932-33] used goat virus alone on 520 animals where 2 deaths were recorded due to the reaction of virus. Clerk [1932] experienced, while conducting inoculations with goat virus, excellent results with a very small mortality in some herds and in some heavy mortality in Nigeria.

After completing some of the preliminary experiments with goat virus in the Laboratory, a programme was drawn up to study the exact nature of reaction and the duration of immunity produced under field conditions in Mysore by inoculating goat virus alone.

Selection of animals :—It is very difficult in India where the system of rearing cattle is quite different as compared with western countries, to maintain the statistics of particular animals. Due to the practice of sale or exchange of cattle almost every year, except some cows, by the agricultural population, no particular animal will be available after a certain period to collect the required statistics. As there are very few Dairy Farms run by private enterprise in this country we have to depend on the Dairy Farms and other breeding concerns managed by Government.

Arrangements were made with the Live-stock Expert in Mysore to make available one of the herds of Amrit Mahal cattle for the purpose of studying the immunity conferred by the inoculation with goat virus alone. He was kind enough to place herd No. 3 at our disposal. 213 animals, the ages of which varied from 1 to 5 years at the time of inoculation were selected for inoculation. These animals were not protected previously by any

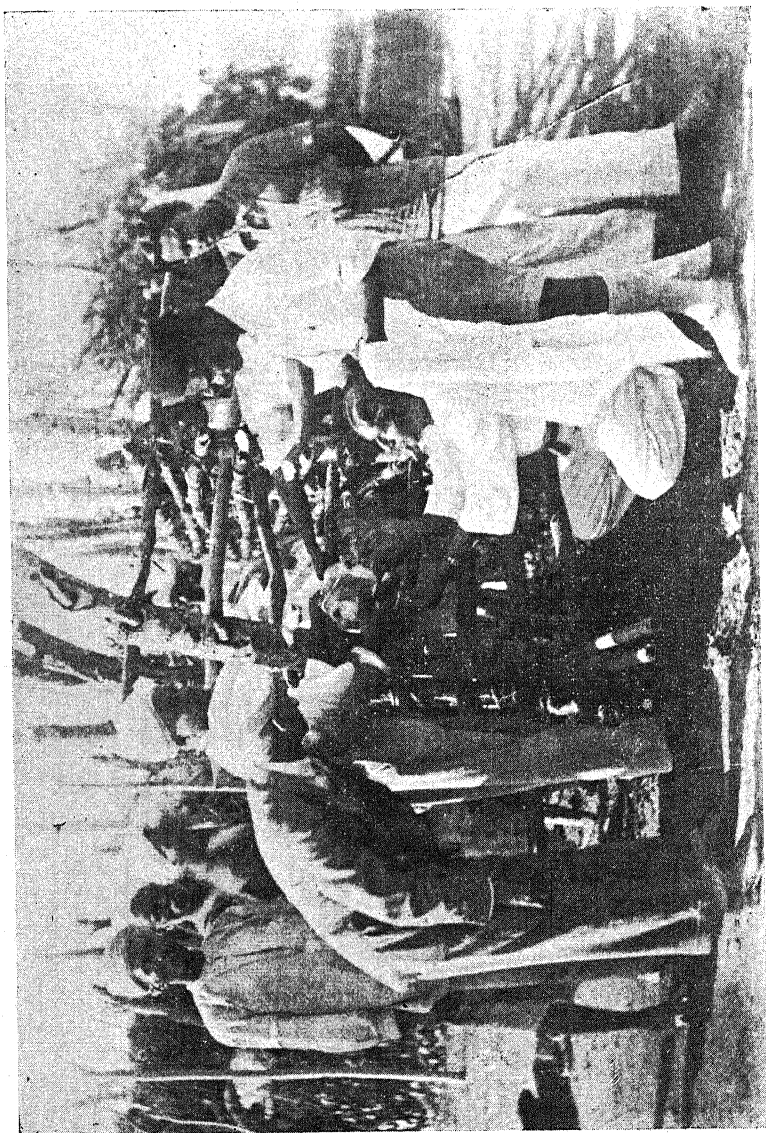
method against Rinderpest. Of these animals only 165 were actually available for our future test purpose as the remaining animals were the property of the **Servegar*.

Inoculation camp :—The Amrit Mahal Cattle are not well domesticated, or broken for work purposes. They are maintained by the Government of Mysore mainly for the purpose of breeding good variety of bulls. Each herd consists nearly of 400 to 600 head of cattle. They move from pasture to pasture. These animals are very high spirited and famous for their strength and endurance. Control in their semi-wild state is possible only with special contrivances. A circular stockade with bamboos or jungle wood up to a height of nearly 10 to 12 feet is put up so that the animals may not jump over and escape. The inlet into this stockade will generally be a small gate made of bamboos. The required number of animals is driven in a group into the stockade through this gate. Opposite to the gate, on the other side, a small passage about 10 feet long and $2\frac{1}{2}$ feet wide is constructed with very strong bamboos. To control the animal for inoculating or for making observations, one animal at a time is driven into the passage and the movements of the animal are controlled by putting the cross bars in front and behind the animal.

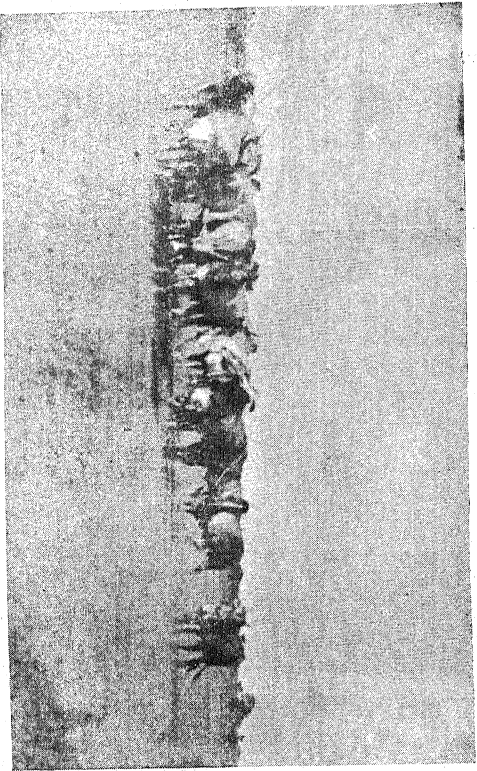
The place of camp was arranged in a pasture near Arsikere about 100 miles from Bangalore.

The result of Goat Virus inoculation :—213 head of cattle were protected with Goat Virus [brew Nos. 92, 93 and 94 of 1932-33] using a dose of 1 c.c. of virus per animal on the 17th and 18th February 1933. Out of these 165 animals were set apart for making observations and conducting immunity tests. [Vide table I]. Observations were made for 10 days from the date of inoculation. The percentage of reactors among calves aged 2 years and below was much higher [92 and 93 per cent.] compared with animals above

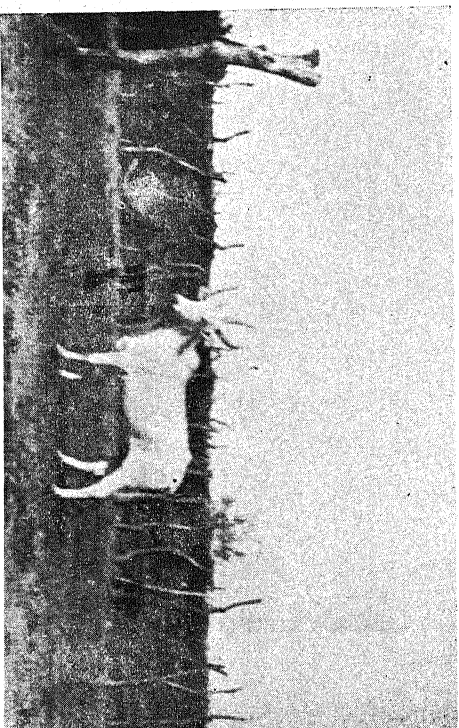
* *Servegar* is a petty official who will be in charge of an Amrit Mahal herd. He is held responsible for loss of animals, etc. As a remuneration, he is allowed to have his own animals with the Government animals to graze on Government pastures.



Controlling Amrit Mahal Bulls in a stockade for inoculation and examination.



A group of Amrit Mahal Cattle.



An Amrit Mahal Bull secured to a Stockade.

two years of age. [Vide table 11]. Almost all the reactors passed through a typical syndrome of rinderpest [Vide chart] and only one calf [1932 born] developed vesicles in the mouth on the 8th day after the inoculation which healed in two days [Vide chart]. The incubation period among the animals aged above two years was observed to be from 3 to 5 days and the febrile period commenced after the 5th day and even as late as the 6th, 7th or the 8th day. The reaction among these animals was certainly very mild compared with that observed in the first group of animals aged below two years. In this latter group of animals [whose age ranged from a few months (3 to 4 months) to two years], the incubation period was noticed to be between 48 and 72 hours and the thermal reaction severe the highest temperature recorded being 106.4° F. [Vide table 1]. The thermal reaction commenced from the 3rd or 4th day and continued for 4 or 5 days. The temperature came to normal by the 9th or 10th day in all the animals [Vide chart], irrespective of severity of the reaction set up.

Two goats were used as controls for goat virus at the camp. Both of them got the infection and exhibited both thermal and clinical reactions.

Immunity Tests.

It was decided to divide these animals into batches representing all ages [1 to 5 years] for the immunity tests at different intervals.

The first batch of 48 animals was tested with bovine virus [brew Nos. 552, 555 and 556 of 1932-33] on the 13th March 1933, three weeks after the date of primary inoculation, 39 animals in this batch had reacted to Goat virus. None of the animals under test showed any kind of reaction for a test dose, [Vide table 1 and 111 and chart]. The two controls [Bull calves] out of the three used in this experiment reacted to the bovine virus proving that the animals have developed immunity against rinderpest,

The second batch of 15 animals was tested with bovine virus on 2nd April 1933, six weeks after the date of primary inoculation. All the animals of this batch had reacted to Goat Virus. Three

buffalo bull calves were inoculated with bovine virus [brew Nos. 581 and 582 of 1932-33] prior to the test inoculations. Two buffalo calves and two bull calves took the infection and reacted to the virus. Blood was drawn from one of the calves [No. 5] at the height of reaction and was inoculated to this second batch of animals. A sample of this virus was despatched to Bangalore where 6 buffalo calves were sub-inoculated. All the calves got Rinderpest and three succumbed to it. None of this second batch of animals reacted to this test dose which fact proves that the animals acquired an immunity against Rinderpest.

The third batch comprising of 25 animals were subjected to immunity tests with bovine virus [brew No. 235 of 1933-34] on 23rd October 1933, eight months after this date of the primary inoculation. 19 animals of this batch had reacted to goat virus [Vide table 11]. Three local bull calves were used as controls for this test with bovine virus. Two of them took the infection typically. At the same time 12 buffalo calves were infected with the same sample of virus in the institute at Bangalore. 11 calves got the disease and 8 died of it. None of the test animals showed any kind of reaction, thus proving that this third batch of animals was immune to Rinderpest after inoculation with Goat-virus.

The fourth batch of 25 animals was tested with bovine virus [brew No. 35 of 1935-36] on the 4th and 5th December 1935, after a lapse of two years and 9½ months from the original inoculation. As usual the observations were made and recorded for ten days. One animal escaped from the camp after the inoculation and could not be secured back. None of the animals excepting one [] showed any kind of reaction [1932-21 Puttlakki Male] and even this showed only a thermal reaction for two days on the 7th and 8th day. Out of the three bull calves kept as controls for this test with bovine virus two reacted. From the foregoing test it can be concluded that Goat-adapted Virus is capable of developing an immunity against Rinderpest of a fairly long duration, which is two years and 9½ months in this case.

Out of these 165 animals protected with Goat Virus, 113 were subjected to immunity tests so far, 17 have been sold,

11 died due to causes other than Rinderpest and 24 are still available in addition to those that are at cattle breeding station for future tests which will be taken up after a sufficiently long duration.

Nature of Immunity:—It is admitted that young calves do not form suitable subjects for immunisation against rinderpest. Montgomery [1915-16] says that calves under six months old do not get permanent immunity. Pool [1921] advocates that calves under nine months old should not be inoculated by Serum Simultaneous method. D'Costa and Balwant Singh [1933] conclude from their experiments that calves under four months old are considered of little practical value and better results are obtained if the virus inoculation is repeated 12 to 18 months after the Serum Simultaneous inoculation and opine that 4 years is the maximum test period of immunity produced by Serum Simultaneous inoculation.

Age appears to play a prominent part in assessing the type and duration of immunity. Srikantaiah [1935] records, while conducting some immunity tests on animals protected by Serum Simultaneous method of inoculation, that with increasing age, at the time of inoculation, a decrease in the severity of reaction is noticed to the test dose. All calves below three years of age reacted, especially those that were under one year of age gave very severe reactions. This result confirms the observations of Banerji [1933] in recording the reactions obtained with a test dose of bovine virus after an interval to the extent of 31 months.

Duration of immunity obtained by goat virus does not seem to bear much of a relationship to the degree of reaction set up during the course of immunisation, especially in the case of adult cattle. It is observed that over 90 per cent. of the animals aged below two years have reacted during immunisation with Goat Virus where as less than 50 per cent. of the adult animals have shown mild reaction only. But on immunity test all of them whether reacted to goat virus or not did not evince any sort of reaction to the test dose after intervals of three weeks, six weeks, eight months and 2 years and 9½ months.

One significant feature is that animals aged below three years protected by Serum Simultaneous method as recorded by Srikantaiah [1935], show a certain amount of reactions to the test dose, while those protected with Goat virus when put to test with bovine virus did not show any kind of reaction. This, if confirmed by other workers will go a long way in enhancing the value of immunisation with Goat Virus over that with the Serum simultaneous method of protection.

Sterling [1933] tested some animals protected with Goat Virus after an interval of over one year and found the animals immune. Haddow [1934] records the immunity tetes after an interval of two years with good results. So far our tests are concerned the longest period recorded is 2 years and 9½ months after inoculation with Goat Virus,

Summary.

1. 1 Immunisation of 213 head of Amrit Mahal cattle with Goat Virus alone was conducted with encouraging results and observations on 165 animals were recorded.

2. Calves below two years of age showed severe reactions with Goat Virus alone inoculations whereas the adult cattle showed mild or no reactions.

3. The incubation period was shorter and the febrile period longer among the young calves [aged 1 year and below] than amongst the adults.

4. Duration of immunity does not necessarily depend upon the degree of reaction set up by inoculation with Goat Virus.

5. A more solid immunity appears to result in cattle after the Goat Virus inoculations than after Serum Simultaneous method of inoculation, as evidenced by the comparison of the reactions produced by both the methods of protection (Serum Simultaneous and Goat Virus alone).

6. 113 animals were subjected to immunity test after Goat Virus inoculations in four batches at intervals of 3 and 6 weeks,

8 months and 2 years and 9½ months. All the animals proved to be immune to withstand against a fatal dose of Rinderpest Bovine Virus.

Acknowledgment.

We are indebted to Mr. S. D. Achar, Superintendent, who was kind enough to afford facilities for the study of the subject in question and to Lt. A. A. Monterio who placed one of the herds under his charge for our purpose.

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TABLE I.

Immunisation of Amrit Mahal Cattle with Goat Virus alone and the result of immunity test with Bovine Virus

BATCH I

Serial No.	Description of animals		Date of inoculation with goat virus.	Age at the time of inoculation.	Reaction		Date of immunity test.	Interval between inoculation with G. V. and Immunity test.	Reaction - Result.
	Name	Sex			Kind of reaction	Highest temperature and day			
1	Mali	Female	1928—3	5 Years	Thermal	103.4° F. (7th day)	13-3-1933	Three weeks	Mild thermal reaction—Immune. Negative Immune.
2	Mangy	"	"—7	"	"	105.4° F. (4th day)	"	"	"
3	Narasi	"	"—11	"	Mild thermal	102.8° F. (6th day)	"	"	"
4	Kariyakka	"	"—15	"	"	103.4° F. (8th day)	"	"	"
5	Belligeje	"	"—18	"	Not appreciable		"	"	"
6	Paradesie	"	"—20	"	Thermal	103.2° F. (7th day)	"	"	"
7	Narasi	Male	1929—2	4 Years	Thermal	104.4° F. (6th day)	"	"	"
8	Mangy	"	"—6	"	Not appreciable		"	"	"
9	Chunchunakote	Female	"—8	"	Thermal	104.0° F. (8th day)	"	"	"
10	Mangy	"	"—21	"	Negative		"	"	"
11	Mangy	"	"—12	"	Not appreciable		"	"	"
12	Akma	"	"—16	"	Mild thermal	103.8° F. (7th day)	"	"	"
13	Gulaganji	"	"—18	"	Negative		"	"	"
14	Thimka	"	"—23	"	Mild thermal	103.6° F. (7th day)	"	"	"

15	Nandhari	"	"	-26	"	"	Thermal	103. 8° F. (7th day)	"	"	"
16	Nadujanea	Male	"	-32	"	"	Not appreciable	"	"	"	"
17	Raya Devi	"	"	-33	"	"	Negative	"	"	"	"
18	Koneri	"	1930-1	"	"	3 Years	Thermal	105. 4° F. (7th day)	"	"	"
19	Sidala Mari	"	"	-3	"	"	Irregular recording and not appreciable.	"	"	"	"
20	Rangiri	Female	"	-5	"	"	Not appreciable	"	"	"	"
21	Hole Raya	"	"	-7	"	"	"	"	"	"	"
22	Nidrabhogi	"	"	-30	17-2-1933	"	Mild thermal	103. 2° F. (5th day)	"	"	"
23	Jog-bhori	"	"	-11	18-2-1933	"	Not appreciable	"	"	"	"
24	Bali-gajje	Male	"	-15	"	"	Irregular recording	"	"	"	"
25	Kurudabasavi	Female	"	-24	"	"	Thermal	103. 8° F. (4th day)	"	"	Mild thermal "
26	Bidare	"	1931-1	"	"	2 Years	Thermal	104. 8° F. (4th day)	"	"	Vesicles in the mouth
27	Mandala agiri	"	"	-6	"	"	Not appreciable	"	"	"	mild thermal "
28	Gunavanthe	"	"	-10	17-2-1933	"	Thermal	104. 2° F. (4th day)	"	"	Negative "
29	Chunchunkote	"	"	-13	"	"	"	104. 8° F. (4th day)	"	"	"
30	Akna	"	"	-15	"	"	"	104. 8° F. (5th day)	"	"	"
31	Koneri	"	"	-17	"	"	"	104. 8° F. (5th day)	"	"	"
32	Davagiri	"	"	-24	18-2-1933	"	Negative	"	"	"	"
33	Nandibasvi	"	"	-26	17-2-1933	"	Thermal	105. 0° F. (5th day)	"	"	Mild thermal "
34	Kadiri	"	"	-30	"	"	"	104. 6° F. (5th day)	"	"	103. 4° F. (8th day) "

BATCH I

TABLE I—(Continued).

Serial No.	Description of animals		Date of inoculation with goat virus.	Age at the time of inoculation.	Reaction		Date of immunity test.	Interval between inoculation with G. V. and immunity test.	Reaction -Result.
	Name	Sex	Year brand and No.		Kind of reaction	Highest temperature and day.			
35	Chunchunagiri	Female	1931—30	18-2-1933	2 Years	Thermal	104. 8° F. (4th day)	Three weeks	Mild thermal 102. 8° F. (8th day) Negative
36	Garudahanumi	"	" —35	17-2-1933	"	"	104. 0° F. (5th day)	"	"
37	Balekai Siddi	"	" —45	"	"	"	104. 6° F. (4th day)	"	"
38	Chunchunagiri	"	" —49	18-2-1933	"	"	104. 4° F. (4th day)	"	Mild thermal 103. 8° F. (8th day) —Immune. Negative Immune.
39	Nandibasivi	"	" —51	"	"	"	104. 8° F. (5th day)	"	"
40	Papiga	"	1932—6	17-2-1933	1 Year	Not appreciable		"	Mild thermal (102. 8° F.) 8th day Negative
41	Akma	"	" —7	"	"	Thermal	104. 0° F. (6th day)	"	"
42	Govin-daraya	"	" —12	"	"	Vesicles in the mouth. Thermal	105. 0° F. (5th day)	"	"
43	Gunavanthe	Male	" —17	"	"	"	106. 0° F. (5th day)	"	"
44	Ratnagiri	"	" —18	"	"	Negative		"	"
45	Papiga	"	" —22	"	"	"		"	"
46	Kadiri	"	" —26	"	"	Thermal	105. 2° F. (5th day)	"	"
47	Balekai Siddi	Female	" —31	"	"	"	104. 2° F. (5th & 6th day)	"	"
48	Chickraya	"	" —45	"	"	"	105. 4° F. (5th day)	"	Mild thermal 102. 0° F. (8th day)

BATCH II

49 Akma	"	1928—9	18-2-1933	5 Years	Thermal	104. 8° F.	2-4-1933	Six weeks	Negative	Immune
50 Balligundu	"	" — 4	"	"	Not appreciable		"	"	"	"
51 Sivane	"	" — 12	"	"	Irregular recording		"	"	"	"
52 Devagiri	"	1929—4	"	4 Years	"		"	"	"	"
53 Gowri	"	" — 6	"	"	Mild thermal	103. 8° F. (7th day)	"	"	"	"
54 Akma	"	" — 16	"	"	"		"	"	"	"
55 Dymari	"	1930—8	"	3 years	Mild thermal	103. 6° F. (6th day)	"	"	"	"
56 Chunchunakote	"	" — 14	"	"	Irregular recording		"	"	"	"
57 Sanne	"	" — 15	"	"	Thermal	104. 0° F. (4th day)	"	"	"	"
58 Narasi	"	1931—3	"	2 Years	"	103. 8° F. (4th day)	"	"	"	"
59 Savanji	"	" — 17	"	"	"	104. 8° F. (5th day)	"	"	"	"
60 Devagiri	"	" — 53	"	"	"	104. 4° F. (4th day)	"	"	"	"
61 Akma	"	1932—9	"	1 Year	"	104. 4° F. (5th day)	"	"	"	"
62 Nirvani	"	" — 13	"	"	"	105. 0° F. (5th day)	"	"	"	"
63 Koneri	"	" — 19	"	"	"	105. 8° F. (5th day)	"	"	"	"

BATCH III

64 Akma	"	1928—9	"	5 Years	"	104. 6° F. (6th day)	23-10-1933	Eight months	"	"
65 Mylari	"	" — 15	"	"	Negative		"	"	"	"
66 Ranganatha	"	" — 19	"	"	"		"	"	"	"
67 Devagiri	"	1929—6	17-2-1933	4 Years	Not regularly recorded		"	"	"	"

BATCH III

TABLE I—(Continued).

Serial No.	Description of animals		Date of inoculation with goat virus.	Age at time of inoculation.	Reaction		Date of immunity test.	Interval between inoculation with G. V. and immunity test.	Reaction -Result.
	Name	Sex	Year brand and No.		Kind of reaction	Highest temperature and day.			
68	Gowri	Female	1932-11	18-2-1933	4 Years	Negative	23-10-1933	Eight months	Negative Immune
69	Jogabori	"	" -16	"	"	Thermal 103. 6° F. (8th day)	"	"	"
70	Chikraya	"	" -21	"	"	Not appreciable	"	"	"
71	Muthaide	"	" -24	"	"	Thermal 104. 8° F. (6, 7 & 8th day)	"	"	"
72	Hanumi	"	" -32	"	"	Negative	"	"	"
73	Putch-andu	"	1930-8	17-2-1933	3 Years	Thermal 103. 6° F. (5th day)	"	"	"
74	Ranganatha	"	" -11	18-2-1933	"	104. 2° F. (7th day)	"	"	"
75	Gowri	Male	1930-21	"	"	Not regularly recorded	"	"	"
76	Gowri	Female	" -28	"	"	"	"	"	"
77	Akma	"	1931-3	17-2-1933	2 Years	Thermal 104. 4° F. (4, 5, & 6th day)	"	"	"
78	Ramagiri	"	" -12	"	"	103. 8° F. (5th day)	"	"	"
79	Ramagiri	Male	" -18	"	"	105. 4° F. (5th day)	"	"	"
80	Nagare	"	" -21	"	"	105. 8° F. (5th day)	"	"	"
81	Putchandu	Female	" -31	"	"	(4, 5, & 6th day) 104. 8° F. (5th day)	"	"	"
82	Kadiri	Male	" -36	"	"	105. 2° F. (4th day)	"	"	"
83	Sivane	"	" -41	"	"	105. 6° F. (5th day)	"	"	"

84	Muthaide	"	"	-48	"	"	"	"	"	106. 4° F. (5th day)	"	"	"
85	Sivane	Female	1932-11	"	"	1 Year	"	Not appreciable	"	"	"	"	"
86	Kadiri	"	"	-20	"	"	"	Thermal	"	105. 8° F. (5th day)	"	"	"
87	Kadiri	Male	"	-34	"	"	"	"	"	105. 8° F. (5th day)	"	"	"
88	Koneri	Female	"	-42	"	"	"	"	"	104. 0° F. (4th day)	"	"	"
BATCH IV													
89	Nadujane	Female	1928-5	18-2-1933	5 Years	Negative	4-12-1935	2 Years and 9½ months.	"	"	"	"	"
90	Hole Raya	"	"	-10	"	"	"	"	"	"	"	"	"
91	Beladingalu	"	"	-16	"	"	Not appreciable	"	"	"	"	"	"
92	Malika	"	1929-17	"	4 Years	Mild thermal	103. 4° F. (6th day)	"	"	"	"	"	"
93	Sivane	"	"	-17	"	"	Thermal	104. 4° F. (7th day)	"	"	"	"	"
94	Battagiri	"	"	-18	"	"	Negative	"	"	"	"	"	"
95	Chickraya	"	"	-30	"	"	Mild thermal	103. 4° F. (6 & 7th day)	"	"	"	"	"
96	Govinda Raya	"	1930-14	"	3 Years	Observations not recorded as the animal escaped from the camp.	"	"	"	"	"	"	"
97	Devagiri	"	"	-17	"	"	Negative	"	"	"	"	"	"
98	Nidrabhogi	"	"	-22	"	"	"	5-12-1935	"	"	"	"	"
99	Narayani	"	1931-4	17-2-1933	2 Years	Thermal	104. 6° F. (3 & 4th day)	4-12-1935	"	"	"	"	"
100	Sringaradande	"	"	-11	"	"	"	105. 4° F. (5th day)	5-12-1935	"	"	"	"
101	Nidrabhogi	"	"	-22	"	"	"	105. 4° F. (5th day)	4-12-1935	"	"	"	"
102	Nandhari	"	"	-33	"	"	"	105. 6° F. (4 & 5th day)	"	"	"	"	"

BATCH IV

TABLE I—(Continued).

Serial No.	Description of animals		Date of inoculation with goat virus.		Age at the time of inoculation.		Reaction		Date of immunity test.	Interval between inoculation with G. V. and immunity test.	Reaction -Result.
	Name	Sex	Year brand and No.				Kind of reaction	Highest temperature and day.			
103	Thimka	Female	1931-35	17-2-1933	2 Years		Thermal	104. 0° F. (5th day)	4-12-1935	2 Years and 9½ months.	Negative Immune
104	Akma	"	" -38	"	"	"	"	105. 0° F. (5th day)	"	"	"
105	Narasi	"	" -39	"	"	"	"	105. 4° F. (5th day)	"	"	"
106	Chickaya	"	" -45	"	"	"	"	105. 8° F. (5th day)	"	"	"
107	Yanjarasiddi	"	" -47	"	"	"	"	104. 8° F. (5th day)	"	"	"
108	Narayani	"	1932-13	"	1 Year	"	"	105. 0° F. (5th day)	"	"	"
109	Putlakti	Male	" -21	"	"	Negative			"	"	"
110	Devakka	Female	" -24	"	"	Thermal		105. 4° F. (5th day)	"	"	"
111	Papiga	"	" -25	"	"	"	"	106. 4° F. (5th day)	"	"	"
112	Balekaisiddi	"	" -32	"	"	"	"	104. 8° F. (5th day)	"	"	"
113	Komarathi	Male									

Escaped from the camp, hence no observations could be recorded.

TABLE II.

Immunisation with Goat Virus.

Dates of inoculation 17th and 18th, Feb. 1933.

Year Brand	Number of animals inoculated.	Age.	Highest temperature recorded.	Highest average temperature.	Numbers of reacters.	Percentage of reacters.	Remarks.
1928	18	5 Years	105.4°F.	104.0°F.	6	33 1/3%	
1929	36	4 "	104.8°F.	103.8°F.	16	44%	
1930	32	3 "	105.0°F.	103.6°F.	16	50%	
1931	51	2 "	106.4°F.	104.8°F.	47	92%	
1932	28	1 "	106.0°F.	105.0°F.	26	93%	

Two goats were maintained as controls. Both of them took the infection and exhibited typical syndrome of rinderpest.

TABLE III.

Immunity test of I batch of 48 animals.

Immunity test of 1 batch of 40 animals.									
Year	Brand	Number Selected	Date of inoculation with Goat Virus.	Number re-acted for Goat Virus.	Date of Immuni-ty test with Bovine Virus.	Interval between inoculation with G.V. and Immunity test.		Result.	Remarks.
1928		6	18-2-1933	5	13-3-1933	Three weeks	No reaction-Immune.		
1929		11	"	6	"	"	"		
1930		8	"	8	"	"	"		
1931		14	"	12	"	"	"		
1932		9	"	8	"	"	"		
Three bull calves were maintained as controls for Bovine Virus. 2 calves took the infection exhibited typical symptoms of rinderpest.									

Three bull calves were maintained as controls for Bovine Virus. 2 calves took the infection exhibited typical symptoms of rinderpest.

Immunity test of II batch of 15 animals.

Immunity test of 11 batch of 15 animals.						
				2-4-1933	Six weeks	
1928	3	"	3			"
1929	3	"	3	"	"	"
1930	3	"	3	"	"	"
1931	3	"	3	"	"	"
1932	3	17-2-1933	3	"	"	"
Three buffalo calves and three bull calves were maintained as controls for bovine virus. 2 buffalo calves 2 bull calves reacted to rinderpest typically. The Virus from one of the calves (Control No.5) was sub-inoculated at the Institute to 6 buffalo calves (Nos. 987 to 992) and all of them took the infection.						

Three buffalo calves and three bull calves were maintained as controls for bovine virus, 2 buffalo calves 2 bull calves reacted to rinderpest typically. The Virus from one of the calves (Control No. 5) was sub-inoculated at the Institute to 6 buffalo calves (Nos. 987 to 992) and all of them took the infection.

C

Immunity test of III batch of 25 animals.

1928	3	18-2-1933	1	23-10-1933	Eight months	"
1929	6	"	4	"	"	"
1930	4	17 & 18-2-1933	2	"	"	"
1931	8	"	8	"	"	"
1932	4	"	4	"	"	"

Three bull calves were maintained as controls for Bovine Virus, and two reacted typically to rinderpest.

D

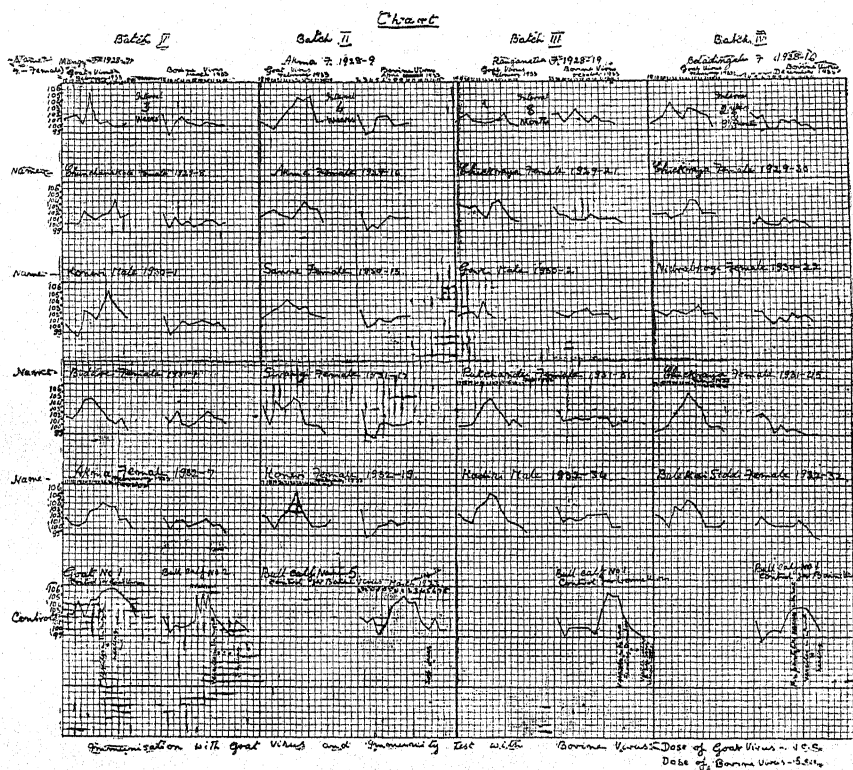
Immunity test of IV batch of 25 animals.

1928	3	18-2-1933	1	4-12-1935	Two years, nine months and fifteen days, (2 years & 9 1/2 months)	"
1929	4	"	3	"	"	"
1930	3	"	-	4 & 5-12-1935	"	"
1931	9	17-2-1933	9	4-12-1935.	"	"
1932	6	"	6	"	"	"

Observations of one animal could not be recorded as she escaped from the camp and could not be traced.

Three bull calves were maintained as controls for Bovine Virus and two calves took the infection and reacted typically to rinderpest.

Duration of Immunity in Amrit Mahal Cattle with Goat Virus.



Immunisation with Goat Virus and Immunity Test with Bovine Virus

Dose of Goat Virus—1cc.

Dose of Bovine Virus—5cc.

Clinical Articles.

A CASE OF INTESTINALST OBSTRUCTION IN A DOG.

BY

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I/c Civil Veterinary Hospital, Narayanaguda, Hyderabad-Deccan.

A Grey hound, aged about three years, belonging to a well-to-do person, was brought to me on 20-8-1936, for treatment with the history that the dog was off feed for the previous three days, straining hard, passing only a few drops of blood several times a day. The owner also informed me that there was a tumour in the abdominal cavity. He had given once or twice large doses of castor oil with no result.

On examination, I found a hard movable mass as big as a fist having oval shape, behind the last rib on the right aspect of the abdominal floor. On moving the mass backwards and passing the finger through the rectum, I could only feel it enclosed in the lumen of the intestines. However, before deciding to do anything more it was recommended to be X-rayed.

The X-ray report showed that it was collection of masses of faecalites in Colon.

The treatment adopted :—The mass was well manipulated with the intention of breaking it, but it always moved as if it were one solid mass. Then an oil enema was given with high pressure and the dog was allowed to walk about. After about fifteen minutes, he vomited a large mass of faeces mixed with several pieces of stones, but nothing came out from the rectum other than the oil and water given in the form of enema. But the animal continued straining. On examining again, the lump appeared still harder but smaller in size. A dose of olive oil was given by mouth and another dose was advised in the evening. The animal was brought to me again next morning. The condition

remained the same excepting that a little liquid fæces came out each time the animal strained, On pushing the lump backwards, I could feel through the rectum a piece of bone. I managed to pull it out with the aid of forceps. The bone had a rugged surface with a tendency to disintegrate. It weighed about one ounce. After this two small pieces of bones and a small quantity of fæces came out. The dog felt much relieved. Liquid nourishment and a dose of liquid paraffin at night was recommended. The Animal became alright after a couple of days.

The point of interest in this case is how a big piece of bone escaped through the stomach and caused obstruction by giving rise to the formation of such a deceptive mass consisting of pieces of bones, gravel and fæces.

A STUDY OF SOME SHEEP DISEASES.

BY

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Since posted to this Institute where there is also breeding of sheep in practice, the following conditions in sheep were encountered:—

(1) *Bronchitis (suspected parasitic).—Ewe No. 1024, Case No. 1143 of 1934-35:—*From 9-2-1934 the animal was ailing with cough of presistent, distressing and spasmodic nature. It was getting cough electuary and steam inhalations till the end of May 1934. As there was not the least improvement, it was suspected for parasitic bronchitis. Nasal discharge and sputum from the throat were however negative for ova of *Strongylus* species, when examined in this institute and the Madras Veterinary College. The animal was given the following intra-trachially twice with an interval of a week:—

Ol. Terebinth :	1 dr.
Ol. Olive	30 mms.
Chloroform	10 mms.
Acid Carbolic	10 mms.
Aqua	30 mms.

The first dose gave a satisfactory result i.e., the violence of the cough decreased and the second dose almost subsided the cough offering a great relief to the animal. Still, the animal was coughing occasionally when the seat of injection was palpated. Subsequently the ewe was found to be alright running about and grazing normally and gradually it put on condition also.

Again in 1935 March, cases exhibiting similar symptoms were noticed.

Ewe No. 803 :	Case No. 1083.
Ewe No. 485 :	Case No. 1084.
Ewe No. 46 :	Case No. 1090.
Ewe No. 630 :	Case No. 1091.
Ewe No. 709 :	Case No. 1092.
Ewe No. 867 :	Case No. 1093.
Ewe No. 58 :	Case No. 1095.
Ewe No. 638 :	Case No. 1096.
Ewe No. 932 :	Case No. 1097.
Ewe No. 480 :	Case No. 1098.
Ewe No. 494 :	Case No. 1099.

All these immediately received an intra-tracheal injection as in the case of ewe No. 1024. Four out of 11 recovered with one injection and the remaining two received a second dose to effect a complete cure.

(2) *Strongylosis*:—By this I mean wire-worm infestation (*Haemonchus Contortus* and *Mecistocirrus Digitatus*) in the abomasum of sheep. This sets up varied symptoms such as off-feed, colicky pains, diarrhoea—simple or hæmorrhagic—, tympany, partial paralysis, fever and debility as seen in the following cases.

Ewe No. 890 :	Case No. 520.
do. No. 940 :	do. 592.
do. 793 :	do. 593.
do. 6 :	do. 594.

Examination of fæces from all these cases under microscope showed ova of *Strongylus* species.

Treatment:—These animals were dosed with 18 grains of copper-sulphate and 18 grains of mustard in 4 ounces of water, when symptoms of recovery were noticed. These were discharged cured, after a course of tonic powder.

As a preventive, all the sheep on the farm are being similarly dosed regularly three or four times a year now, and the number of attacks has decreased. Occasionally, however, stray cases of strongylosis do occur amongst them which are treated individually on the above lines.

(3) *Teniasis*:—*Ram No. 52, Case No. 1033*:—On 1—3—1935, it was reported that the ram was not grazing properly and used to sit down always. During examination it had giddiness, staggering gait and temperature 103.2°F. With a view to examine its dung for ova of internal parasites, the index finger was introduced in the rectum to get some droppings. When the finger was removed it was found that segments of tape-worms (*Monezia*-species) were sticking to it.

Treatment:—The ram was kept off-feed overnight. In the morning 20 grains of freshly powdered areca-nut (45 lb. live-weight of the ram) mixed with 4 ounces of cow's milk, was drenched. Two hours afterwards the ram purged a lot of tape worms. Next day onwards the animal was put on a course of tonic powder with sulphate of iron for a week and discharged.

(4) *Ascariasis*:—*Ram No. 52: Case No. 741*. On 11-12-1934, the animal was sent to the hospital with violent fits, panting for breath, profuse salivation and temperature 108.2°F.

Treatment:—To start with 10 grains of chloral hydras was administered by mouth mixed with treacle. By the evening the temperature came down to 103.6°F. and other symptoms were also lessened. Next morning the ram was able to stand up and suckle its dam. Examination of droppings showed under microscope, ova of ascaris. The animal was then dosed with:—

Ol. Chinapodium	...	20 mms.
Ol. Terebinth	...	1 dr.

Tr. Gingiberis	... 30 mms.
Ol. Recini	... 6 oz.

The ram purged some round worms: it was discharged after a week's course of tonic powder.

(5) *Intussusception of the bowels*:—*Ram No. 56 : Case No. 740.* On 11-12-1934, this animal was sent to the hospital at about 10 A. M. It was very dull, unable to stand and had tympany. The temperature was normal. Symptomatic treatment was adopted and the animal died at about 2 P. M. On autopsy the abomasum was found to have contained plenty of fine sand and the small intestines were invaginated in three different places. (Specimen preserved in the hospital laboratory).

(6) *Gid*:—*Ewe No. 859 : Case No. 638*:—On 1-11-1934, the ewe was admitted in the hospital with intense tympany and fever. Symptomatic treatment was adopted without any effect. Next day the animal resumed a recumbent position, the tympany and fever were still present. Gradually the animal's head was stretching high, champing of the jaws began with discharge of frothy saliva from the mouth and quivering of the eyes. On the morning of the 4th idem the sheep died and post-mortem examination was conducted. When the skull was opened, the meninges were found to be inflamed and a cyst with its inner surface studded with whitish granules as big as poppy seeds, was found to be imbedded in the right cerebral hemisphere. The cyst was suspected for *caenuris* and confirmed as such by the Principal of the Madras Veterinary College.

(7) *Coccidiosis*: *Ram No. 62 and 79 : Case Nos. 777 & 819*:—These animals had diarrhoea with blood and mucus and the temperature was 104.6°F. Examination of the dung showed oocysts of coccidia and ova of strongylus species. So, on the first day the animals were dosed with copper sulphate and mustard, 18 grains each in 4 oz. of water and kept off-feed the whole day and night. Next morning the temperature came down to normal but the diarrhoea was still present. They were therefore given astringent mixture consisting of Pulvis Creta, Tr. Catachu,

Tr. Asafoetida, treacle and water, twice a day. The animals recovered and were discharged a fortnight afterwards.

The sheep pen was thoroughly disinfected by burning the litter and with cresol lotion and advised to colour the drinking water of the sheep to slightly pink, practically every day, with permanganate of potash. No further case occurred.

General :—It will not be out of place to mention here that during my tenure of office as Municipal Veterinary Officer, Ootacamund, (The Nilgiris) for nearly 12 years, where about 25,000 head of sheep are being slaughtered every year in the Municipal Abattoir, I have found a fair percentage of sheep's lungs and liver been infested with *echinococcus cysts* and a small percentage of similar infestations in the spleen. Besides these, other parasites *viz.*, Trematodes in the rumen and liver, Schistosome species in the liver, Oesophagostomum Columbianum, Trichuris-Ovis, Tape-worm of Moniezia species in the digestive tract, Cysticercii Ienui Collis in the omentum and mesentry, parasitic cysts in muscle tissue and larvæ of cestrus-ovis in the nasal cavities are noticed in large numbers.

LOCALISED FORM OF COW POX AND ITS TREATMENT.

BY

M. K. P. PILLAI, G. B. V. C.,

Veterinary Surgeon, Trivandrum.

During these two years of my private practice I happened to come across a good many cases of cow pox (localised form). The owners state regarding the history that the affected cows kick the milk men and do not allow them to milk the cows as the udder is badly affected with some sorts of sores and is very sensitive. Whenever I get such reports I go to the houses of the owners immediately and study whether it is a case of cow pox, foot and mouth disease or cracked udder.

Symptoms :—Condition good, on the udder particularly all around the teats, roundish vesicles containing a depression in the

centre are found. The calves of the respective cows are found to have such vesicles around their oral and anal parts and sometimes at the tip of the ears.

Diagnosis :—Localised form of cow pox.

Treatment :—

R/—

Acid Boric	Oz. ii
Acid Carbolic	m x.
Vaseline	Q. S.
M. Ft. Unguentum.	

Sig: Apply briskly over the affected parts and milk the cow.
Treat the calves with the same ointment as in the cow.

ACUTE MASTITIS—A SEQUEL TO VARIOLA IN BUFFALOES.

BY

RAM PARTAP. L. V. P.,

Veterinary Assistant Surgeon, Hissar.

Mastitis as a sequel to variola is not a common complication as far as I am aware, yet it would appear that neglect in treating cases of Variola may cause Mastitis rendering a part or whole of the udder functionless. I have had opportunities to treat a number of such cases successfully and give details of one case below :—

Subject :—A buffalo, aged 8 years, was brought to the hospital for treatment on 1-11-35.

History :—The buffalo was giving normal quantity of milk some five days before she was brought to the hospital. Within these five days her milk yield gradually went down till she stopped giving milk altogether. She would not even let her calf to suck. She evinced pain on palpating the udder.

On examination the following symptoms were found :—The general condition fair, appetite almost normal, bowels slightly

constipated, udder and three teats (both anterior and left posterior) were swollen, hot to the touch and had eruptions (pocks) thereon. The temperature of the animal was 102.2° F.

Treatment:—The treatment was commenced with a dose of saline purgative.

1. R/

Mag. Sulphas	Lb. 1
Ammon. Chloride	Oz. 1
Pot. Nitras	Oz. 1
Aqua	Pt. 1 ss.
M. Ft. Haustus	
Sig: Give at once.	

followed by a course of:—

2. (i) R/

Pulv. Ginger	Oz. 1
Pulv. Mustard	Dr. 4
Black pepper	Dr. 4.
Sodii Chloride	Oz. 4.
Aqua	Pt. 1ss
M. Ft. Haustus	
Sig: Give in the evening.	

(ii) and Oz. 4 of Mag. Sulphas & Dr. 4 of Pot-Nitras given daily in drinking water in the after-noons.

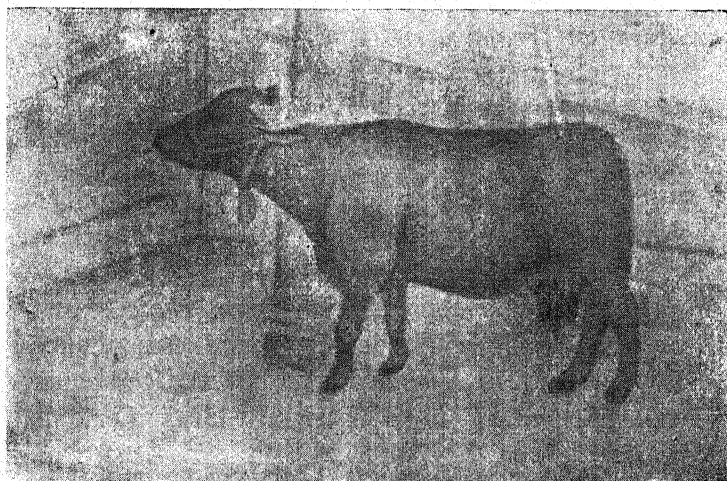
3. The inflamed udder and the teats were fomented with neem leaves decoction for $\frac{1}{2}$ an hour daily for three days.

4. The lesions were treated with the following ointment:—

R/

Powdered burnt 'shell' (seep) Part I
 Butter (well washed with water) Parts 4.
 M. Ft. Unguentum.
 Sig: Applied 2—3 times daily.

5. As the external orifice of the teat canal of affected teats was closed up, due to the inflammation and the lesions thereat, it was opened by passing a sterilized teat syphon and and the milk was removed. In order to keep the external orifices dilated and to avoid the frequent passing-in of the teat syphon the *thread bougies* soaked with Tincture of Iodine were introduced.



The Bougies.

Preparation:—Four inches of English twine is tightly twisted and then doubled. This is tightly twisted and doubled again. In this way one inch *thread bougie* becomes ready for use.

Application.

Half an inch of the thread bougie is introduced into the milk canal and half an inch (the loose portion) of it is allowed to remain outside, as shown in the illustration.

The *thread bougies* were changed morning and evening for four days. At the end of this period milk could be drawn as in normal conditions.

The buffalo was discharged cured on the tenth day of her admission into the hospital.

Conclusion.

I have adopted this line of treatment in several cases of mastitis and stenosis of external orifice of milk duct with success.

ALBINISM IN BUFFALOES.

BY

G. K. SHARMA, G. P. V. C., P. V. S.,

*Offg. Assistant Professor of Animal Husbandry, Punjab
Veterinary College, Lahore.*

Albinism is a congenital absence of pigment, which may be complete or partial. In complete albinism amongst human beings pigment is not only absent from the skin, but also from the hair, irides, and choroids; its subjects are called albinos. The skin appears white or pinkish, and the hair on the part is soft, silky and whitish, or it may have a yellowish tinge. There is intolerance to light, hence the pupils are generally found contracted. This is an antithesis of melanism which is also believed to be hereditary or congenital. According to McFarland (1904) Leukoderma or absence of pigment from the skin, is seen in its most marked and most typical form in the congenital and occasionally hereditary affection known as albinism or congenital Leukopathia. Albinism is, as a rule, universal absence of pigment in the skin. Partial albinism is, however, occasionally observed. Acquired leukopathia is known as vitiligo.

Partial or total albinism is seen in almost all the species of domesticated animals. According to Gray partial or total albinism of the iris in the horse is well known. It is also met with in dogs, especially in Great Danes, in the Siamese cat and in the white Persian cat with blue eyes, in Arkwright or Merlecolle, in goats, and in pigs. Albinism of the choroid is not rare in horses, in the tapetum nigrum which assumes a brick red tint easily illuminated with the ophthalmoscope. It is believed that albinism in dogs and cats is often associated with deafness.

Amongst buffaloes complete albinism is rather rare, but partial albinism particularly of irides is a very common condition.

The irides may be partially albinotic or completely, and the skin may be depigmented in patches. The patches of albinotic area on the skin are commonly met with on muzzle, head, udder and legs. The condition is always congenital and may be hereditary. The irides are bluish around the pupils and the outer part is milky white due to lack of pigments. The animals do not seem to be photophobic as much as in human beings. It has been observed that no correlation exists between partial albinism and deafness in buffaloes. The buffaloes with one or both irides albinotic or wall-eyed have normal hearing.

Some terms are commonly used locally to describe the condition of albinotic eyes in buffaloes. A buffalo with both irides albinotic is called *Billi* and with one iris depigmented is known as *Chakri*, which is regarded inauspicious.

Three hundred and ninety two buffaloes were examined in the different localities of Lahore and the following table shows the percentage of buffaloes with one or both albinotic eyes.

Table. 1

No. of buffaloes examined.	No. of buffaloes with one eye albinotic.	No. of buffaloes with both eyes albinotic.
392	28	150

It appears from the table that the percentage of buffaloes with albinotic eyes is 45. 4.

References.

- Gray, H. (1925) *Nicolas Ophthalmology translated and enlarged* 290.
McFarland, J. (1904) *Text book of Pathology*, 572.

DIAPHRAGMATIC HERNIA IN A BITCH.

BY

P. L. GIBSON,

*Fourth year Student, Faculty of Veterinary Science,
University of Sydney.**(Published with the approval of Dr. R. M. C. Gunn, Lecturer in
Veterinary Surgery, The University of Sydney).*

The patient, an Alsatian bitch, aged three years, was brought to the Veterinary Hospital, Sydney University, on 19th March 1936 (Case No. 765/36).

History:—The owner had reared the animal since a pup. It had always enjoyed good health, was always in good condition, and had suffered no serious illness at any time previously. Ten days prior to admission to hospital the bitch had shown loss of appetite, slight pains in the abdomen, which increased in intensity after eating. Three days afterwards the animal was given a pill (the constituents of which were unknown) by a local registered veterinary surgeon, together with a dose of medicine (also of unknown composition) and an enema. About twenty minutes later the animal vomited a very thick yellowish-green, gelatinous mass. For the succeeding seven days at the end of which time the animal was brought to the hospital, the bitch constantly refused any tempting food offered. Abdominal pain was evinced, particularly when the animal lay down and when attempting to defæcate.

Examination:—The general condition was found to be poor, but there was no gross emaciation. The abdomen was somewhat tense and showed slight pain on palpation in the region of the liver. This, however, was not a constant symptom. The animal was listless and took little heed of the palpation and handling to which she was subjected. The visible mucous membranes were somewhat pale. The urine was normal and the faeces, though scanty, were normal. The temperature on admission was 102° F., the pulse 80 per minute and weak. The respirations were 34 per minute. The type and character of the

respirations was the most diagnostic feature. Some dyspnoea was present. Inspiration was made with an effort and was markedly augmented by tension of the muscles of the flank. Expiration was accompanied by marked contraction of the chest (in an effort to reduce the amount of residual air). Intestinal sounds could not be heard in the thorax, but a dull percussion note was obtained about the middle of the left thoracic wall. Though the animal was not a good subject on account of timidity, there was obtained no evidence of abdominal pain on palpation, either when narcotized (with morphia gr.i) or otherwise. During the subsequent days following admission to hospital the temperature of the patient remained constant at about 102°F and the type of respiration did not alter in character. Food was refused, though gruel, broth, milk, etc., were offered. The animal vomited frequently during the night and immediately after food was forced down the oesophagus.

Diagnosis :—The inability to retain food in the stomach led one to believe that a foreign body might be present. But, whereas this could explain the frequent occurrence of vomiting, it could not account for the peculiar type of respiration, unless it was a sharp penetrating foreign body which had passed through the stomach wall and had become lodged in the diaphragm, which could cause pain on any attempt at respiratory movement, and hence the type of respiration observed. However, abdominal palpation revealed no pain. The possibility of a diaphragmatic hernia being the cause of the condition was supported by :

1. The type of respiration.
2. The absence of evidence of pain in the abdomen on palpation.
3. The vomiting which might be due to the altered position of the stomach.
4. The dull percussion note about the mid-thoracic region on the left side.

X-ray examination after a bismuth meal was not undertaken.

Treatment :—Glucose enemas were administered in an attempt to maintain the animal's strength. The concentration of the enema used was a 5 per cent solution of glucose in normal saline, given 2 drachms four times daily at body heat. Such mild laxatives as *Paraffinum Liquidum* and other medicants could not be retained in the bitch's stomach, and at times even the attempts at dosing stimulated the animal to vomit.

Course :—The animal daily became more and more depressed. On the eighth day after admission she was found dead.

Post Mortem Findings :—On the mucous membrane of the caecum several small ulcers about 3 mm. in diameter were found and a general diffuse enteritis was present. The liver was congested and friable. A hernia was found in the diaphragm in region of the oesophageal opening, with a portion of the stomach protruding through the opening, which was slit-like about two inches long and with edges thickened by fibrous tissue. Acute gastritis was evident.

The Australian Veterinary Journal,
Vol. XIII, No. 1.

Association News.

ASSAM VETERINARY GRADUATES' ASSOCIATION.

**Proceedings of the Fourth Annual Conference held at
Gauhati on 28th and 29th December, 1936.**

General Section. Date—28th December, 1936.

President.

MR. ROHINIKUMAR CHOWDHURI, B. L.

Members Present :—

1. Mr. H. C. Sen, 2. Mr. P. C. Dutt, 3. Mr. N. N. Dutt,
4. Mr. S. Deka, 5. Mr. M. G. Rahman, 6. Mr. B. C. Das,
7. Mr. B. C. Chatterjee, 8. Mr. F. Ahmed, 9. Mr. A. Das,
10. Mr. B. G. Halder, 11. Mr. F. C. Bhuyan, 12. Mr. H. C. Dey,
13. Mr. M. C. Das, 14. Mr. P. C. Pathak, 15. Mr. B. N.
Talukder, 16. Mr. B. Doudga, 17. Mr. A. Zaman, 18. Mr. A
Ahmed, 19. Mr. G. C. Das, 20. Mr. U. Nabindro, 21. Mr. H. K. Nag
Choudhuri.

Several other members were present by Proxy.
Notables Present included.

1. Rai Bahadur Mahendra Mohon Lahiri
2. Sreejut Pampu Singh, Rtd. E. A. C.
3. " B. P. Duarah " "
4. " J. Bujarbarua " "
5. Mr. G. P. Sen " Superintendent, Assam Vety. Dept.
6. " Sarat Chandra Chatterjee, Professor, Cotton College.
7. " Rabindra Nath Das, " " "
8. " Indu Bhushan Sarker " " "
9. " K. B. Shome, Asstt. Registrar, Co-operative Societies.
10. Rai Sahib S. C. Ghosh, Superintendent, Assam Vety. Dept.

Welcome Song was sung by three little girls.

Mr. Bhudar Chandra Chatterjee, Chairman, Reception Committee read his address. (appendix I).

Mr. J. Barooah, Bar-at-Law, Principal, Earle Law College declared the conference open with a speech (appendix II).

Mr. F. Ahmed proposed Mr. Rohini Kumar Choudhuri to preside over the conference, Mr. A. M. Das seconded it which was approved by all. Mr. Rohini Kumar Choudhuri occupied the chair amidst acclamation.

Mr. U. Nabindro, Secretary of the Reception Committee, read the telegrams and letters of well-wishers received from the members and other gentlemen who were unable to be present at the conference for unavoidable reasons.

THE NAMES OF SOME OF THEM ARE:—

1. Hon'ble Dr. W. L. Scott, C.I.E., I. C. S., Member of the Assam Executive Council.

2. Colonel C. E. Palmer, I.C.S., Inspector General of Civil Hospitals and Prisons, Assam.

3. Captain R. E. Peel, Private Secretary to H. E. the Governor of Assam.

4. Mr. J. C. Higgins, I.C.S., Commissioner, Assam Valley Division.

5. Rev : J. J. M. Nicholas Roy, B.A., Shillong.

6. Rai Sahib Ratneswar Das Gupta, Mangaldai.

7. Mr. Girish Chandra Ghosh, Gauhati.

8. Dr. Pratap Narayan Choudhury, (now Rai Sahib) Nalbari.

Dr. P. C. Dutt, read the General Secretary's report for the period ending 31st Oct. 1936. (appendix III)

The President then delivered his illuminating address. (appendix IV).

From amongst the audience the following gentlemen then took the floor to address the gathering.

- | | | |
|--|---|--------------|
| (a) Dr. K. C. Sarman. | } | (appendix V) |
| (b) Dr. P. Singh, Rtd. E. A. C. | | |
| (c) Dr. G. S. Das. | | |
| (d) Rai Sahib S. C. Ghosh, Superintendent, Civil
Veterinary Dept., Assam. | | |

The following Resolutions were then considered and adopted.

Resolutions :—

1. This Conference of the Veterinary Graduates' Association of Assam expresses its deep sorrow at the sad demise of our beloved King Emperor George V.

Proposed by Mr. A. M. Das,
Seconded by Mr. U. Nabindro,
Carried unanimously all standing.

2. The Conference of the V. G. Association of Assam mourns the loss of our beloved colleagues, Late Messrs. R. M. Baruah, S. C. Das Gupta, G. C. Deb and J. Das Gupta at their premature death.

Proposed by Mr. H. C. Day,
Seconded by Mr. A. Zaman,
Carried unanimously.

3. This Conference of V. G. A. of Assam conveys its heartiest congratulations, best wishes and most loyal regards to our King-Emperor George VI.

Proposed by Mr. M. C. Das,
Seconded by Mr. S. A. Haque,
Carried unanimously.

4. Resolved that this Conference offers its respectful thanks to Their Excellencies the Viceroy and the Governor and other official and non-official gentlemen for their personal interest in cattle welfare of this province.

Proposed by Mr. S. Deka,
Seconded by Mr. G. C. Das,
Carried unanimously.

5. Resolved that this Conference do approach the Governor with the prayer that the Veterinary Assistant Surgeons should be recognised as "DOCTORS" and should be addressed officially as such, as has been done in the case of Sub-Assistant Surgeons in this province and the Veterinary Assistant Surgeons in some other provinces.

Proposed by Mr. U. Nabindro,
Seconded by Mr. K. P. Bhattacharya,
Carried unanimously.

6. In view of the earnestness adopted by the Local Government and the public for the improvement of the Local cattle and in view of the fact that without extensive and efficient Veterinary aid such improvement cannot be achieved, this Association urges the Government of Assam to give immediate effect to the following :—

(a) The number of the Veterinary Assistant Surgeons should be increased as recommended by the Linlithgow Commission *viz.* One V. A. S. for each 25,000 cattle.

(b) Each Veterinary Dispensary and Hospital should be provided with adequate up-to-date reference books.

(c) Each Veterinary Inspector should be provided with the up-to-date professional Journals for record in their offices and use in their respective Circles.

(d) Each Veterinary Dispensary and Hospital should be provided with trained Compounders for assisting the V. A. Surgeon in his routine type of work so that the V. A. Surgeon may utilise the time saved in advanced Veterinary works.

Proposed by Mr. P. C. Dutta,
Seconded by Mr. B. C. Das,
Carried unanimously.

7. Resolved that the arrear subscriptions of the defaulting members be written off.

Proposed by Mr. N. N. Dutta,
Seconded by Mr. P. C. Pathak,
Carried unanimously.

8. This Conference of V. G. A. of Assam respectfully urges the Government to provide the V. A. Surgeons with rent free quarters or actual house rent in lieu of the quarters as in the case of the officers of the same status and responsibility of some other departments

Proposed by Mr. F. C. Bhyan,
Seconded by Mr. B. Doudga,
Carried unanimously.

9. Resolved that the Reserve V. A. Surgeons should be allowed the special pay even when they are at Head Quarters.

Proposed by Mr. A. Zaman,
Seconded by Mr. B. N. Talukdar,
Carried unanimously.

10. This Conference urges the Government to fix the Travelling Allowance of the V. A. Surgeons at Rs. 30/- per month—the number of tour days to be calculated at the end of the year at the rate of 15 days per month on an average.

Proposed by Mr. A. Das,
Seconded by Mr. A. Ahmed,
Carried unanimously.

11. This Conference expresses its gratitude to the Government of Assam for promoting 2 of the Graduates of the Indian Veterinary College as Administrative Head of the Civil Veterinary Department, Assam. The Conference further hopes that the arrangement be made permanent.

Proposed by Mr. P. Dutta,
Seconded by Mr. S. Deka,
Carried unanimously.

12. Resolved that the accounts submitted by the General Secretary be accepted.

Proposed by Mr. B. C. Das,
Seconded by Mr. F. C. Bhuyan,
Carried unanimously.

13. Resolved that this Conference draws immediate attention of the Government to Resolutions No. 4 and 12 of the 27th December 1926, of the 2nd Annual Conference of the Veterinary Graduates' Association, Assam.

Proposed by Mr. U. Nabindro,
Seconded by Mr. M. G. Rahman,
Carried unanimously.

14. Resolved that the following members be appointed office bearers till the next Conference of the Association.

President ... Mr. F. Ahmed

Vice-President ... Mr. U. Nabindro

General Secretary ... Mr. S. A. Haque.

Assistant Secretary and Treasurer

Mr. H. K. Nag Choudhuri.

Members ... Mr. H. C. Sen

Mr. P. C. Datta

„ S. Deka

„ F. R. Hazarika

„ B. C. Chatterjee

„ M. C. Das

„ F. C. Bhuyan

Proposed by Mr. A. M. Das,

Seconded by Mr. A. Ahmed,

Carried unanimously.

15. Resolved that the copies of the proceedings be sent to the Superintendent, Civil Veterinary Department and to the Local Government and with Professional Papers to the Veterinary Journals.

Proposed by Mr. C. Das.
Seconded by Mr. P. C. Pathak,
Carried unanimously.

16. Resolved that this Conference accords its hearty thanks to Superintendent, C. V. D. Assam, for kindly allowing the Gauhati Veterinary Hospital compound to be used for the purpose of this Conference.

Proposed by Mr. B. C. Chatterjee,
Seconded by Mr. P. Datta,
Carried unanimously.

Mr. H. C. Sen then proposed a vote of thanks to the Chair which was seconded by Mr. A. M. Das and unanimously carried.

The business of the day terminated with a closing song by three little girls.

PROFESSIONAL SECTION.

Date 29th December, 1936.

President Mr. H. C. Sen.

Owing to the absence of Mr. P. G. Pande, M.Sc., M. R. C. V. S., for unavoidable reasons Mr. H. C. Sen occupied the Chair.

After a neat little speech from the chair the following papers were read and discussed.

1. A case of poisoning similar to Ergot poisoning by Mr. S. Deka.
Discussion was opened by Mr. B. C. Das.

2. On the use of Goat Tissue Virus in Hill animals by Mr. U. Nabindro.

Discussion was opened by Mr. F. C. Bhuyan.

3. Camphor treatment in Anthrax cases by Mr. B. C. Das.

Discussion was opened by Mr. M. C. Das.

4. Iodine in case of Epileptic fit in a bullock by Mr. B. C. Das.

Discussion was opened by Mr. H. C. Dey.

5. A few cases of Turnside by Mr. S. Deka.

Discussion was opened by Mr. M. G. Rahman.

6. A foetus in the udder of a goat by Mr. F. C. Bhuyan Discussion was opened by Mr. H. K. Nag Chowdhury.

7. A brief note on the value of Arsenic in Nasal Granuloma by Mr. F. C. Bhuyan.

Discussion was opened by Mr. B. C. Das (appendix VII)

8. A case of extra uterine gestation by R. S R Laskar. For unavoidable reason the author of the paper could not attend the Conference. The paper was, therefore, read by Mr. A. Zaman, Discussion was opened by Mr. M. G. Rahman.

Mr. M. G. Rahman spoke on a Rickety Calf treated by him with 2 drams of Olive oil twice daily for a fortnight.

(b) Surra with peculiarities in symptoms and reaction of Bayers 205 in both curative and prophylactic doses.

In all papers majority of the members participated in criticism and further elucidation. The President gave his valuable opinion on most of the papers.

Mr. F. Ahmed then proposed a vote of thanks to the Chair and also thanked the Delegates.

Mr. P. C. Dutta thanked those members of the Association, whose endeavour made this gathering possible after long years, and appealed to all the members to do their bit for the Association.

The President then declared the Conference closed.

APPENDIX I.

Welcome Address

By

BHUDAR CHANDRA CHATTERJEE,

Chairman of the Reception Committee.

GENTLEMEN AND BROTHER DELEGATES,

I have great pleasure to welcome you to the labour of the fourth Annual Conference of the Veterinary Graduates' Association, Assam, which the members of the Association have fixed in this premier city of Assam. Gauhati, as you all know, is a historic city endowed with attractive natural grandeur with the mighty river Bramaputra washing its entire length. It is the chief centre of education, culture, and commerce in the province and is a place of holy pilgrimage attracting pilgrims from all over India. Gentlemen, I realise that I am not worthy of the honour and responsibility of receiving you here to-day, but I am sure that you will forgive any failing on my part.

The importance of a Department which deals with the chief assets—the cattle—of this Agricultural country can hardly be minimised. I believe there is none here who would question the greatest value of livestock. The members of a Department who are custodians of this valuable assets both in health and disease have, I believe, good reason to feel proud that they render an earnest and valuable service to contribute to the prosperity of the province. You are all aware that our present Viceroy, His Excellency Lord Linlithgow, appreciating the necessity of regenerating the degenerated stock of the country has already initiated sustained effort all over the country for proper breeding and feeding of the stock and also to provide sufficient and good milk to our badly nourished children and mothers. You also know that scourge of epidemics and other diseases from time to time sweep the stock which are indispensably necessary to provide nourishment to our children and to plough our lands. Now, a Department which contributes to save the stock from the scourge of the disease and to improve the stock does not only do the humanitarian duty but helps considerably to the economic uplift of the country.

What tremendous work is being done by the Veterinary Department in Assam with a limited staff at its disposal is perhaps known to you. If you look into the latest Annual Report of the Department you will be surprised to find that with a staff of only sixty Veterinary Assistant Surgeons, the Department protected against diseases over one lac six thousand cattle and treated over one lac eleven thousand animals in a single year besides removing over twenty-five thousand weedy bulls from the field of breeding by sterilising them by bloodless method of castration. These officers visited as many as over eleven thousand seven hundred villages. I believe you would appreciate to what extent the Department has been rendering service to the public from the figures

just mentioned, Gentlemen, this is not all, The Department during the recent years has made considerable scientific advancement so that new methods of protecting cattle against Rinderpest, successful curative treatment of such fell diseases as Anthrax, Hæmorrhagic Septicæmia and Surra, etiological study of some of the common but damaging diseases have been worked out.

Gentlemen, it is needless to emphasise the necessity of increasing the technical staff of field workers *who form the backbone of the Department*. Unfortunately, however, adverse financial position stands in the way, The dual control of the Department by the Government and the Local Boards is also partly responsible for inadequate expansion of the Department. To our great regret the Department does not give reasonable scope of prospects to its officers. The only post of the Deputy Superintendent of the Department has practically been held in abeyance since the creation of the post. I believe there is no Department in this or any other province which goes without a Provincial Service Officer. The need of a Deputy Superintendent was never so great as it is to-day. It seems incredible that the Head of the Department whose responsibility stands equal to the head of any other technical Department should be given a salary which is hardly better than that of a selection grade Sub-Deputy Collector or a Sub-Engineer. To my mind the Department requires reorganisation and should offer prospect equal to that of other technical Departments. The number of Veterinary Assistant Surgeons who are the actual field workers needs to be immediately increased substantially if the ever-increasing public demand for Veterinary aid has to be properly met. I think you would all agree with me when I say that each Veterinary dispensary should be provided with a trained compounder. The necessity of a trained assistant to each Veterinary Assistant Surgeon to help him in preventive inoculation, castration work, and such other works was never so great as it is now. This is however, primarily a matter for the Local Boards in the province to give, their serious thought. The necessity of a Serum and Vaccine depot in the Surma Valley and also a Veterinary Laboratory there is keenly felt. The range of jurisdiction and nature of duty of the Veterinary Inspectors justify reconsideration for amelioration of their status. They should be given the same privilege of status as that of Deputy Inspector of Schools, Sub-Deputy Collectors, etc. As a matter of fact, this privilege was once enjoyed by the Veterinary Inspectors in the province. There seems to have been no good reason why the practice of gazetting the appointment, transfer, posting, leave, etc., of the Veterinary Inspectors should have been discontinued specially because the same privilege is enjoyed by officers who draw a less pay with less responsibility than the Veterinary Inspectors—a specific instance is the case of the Sub-Assistant Surgeons or Assistant teachers and Sub-Inspectors of Schools. This is a measure, if conceded, would remove the grievance but cost Government nothing.

Gentlemen, I have just said a few of the points as they occurred to me and I am sure the Conference will take up such questions as they think meet and proper. Before I resume my seat I should like to express thankfulness of the Service to the Government for their promoting

consecutively two of our worthy colleagues to the highest administrative post of our Department which both of them have so worthily held. It is gratifying that their life-long matured experience of Veterinary work and of the Department of the province have given them ample opportunity to prove their worth. This has proved beyond doubt that, given proper opportunity, the graduates of the Indian Veterinary Colleges stand equal with their colleagues from abroad.

Gentlemen, I thank you very much for the encouragement you have extended to the members of the Association by your presence here and I wish the Conference all success.

APPENDIX II. OPENING SPEECH

BY

J. BAROOHA ESQ.

Bar-at-law, Principal, Early Law College

GENTLEMEN,

I have been asked to open this Conference and I do not know why, but I am very glad to be with you. As the Chairman of the Reception Committee has said, agriculture and veterinary are akin to one another and they are like two sisters and so they cannot prosper without the help of each other. I am very pleased that you have asked me to speak on this occasion. I am glad to see three little girls here among the audience to-day. I hope they will learn to drink milk, more milk and good milk and to preach this doctrine among their playmates. In English and other newspapers lately you have been reading of 'Milk' and 'Milk Bars' and also that a 'Milk Bar' was put up in the Lucknow Exhibition because they have now realised the efficacy of drinking more milk. Drink more and more milk. It is seen now-a-days that when babies are born mothers cannot breast feed them simply because the mothers themselves did not have sufficient quantity of milk in their own younger days. We have to depend on artificial food which is not right, because mother's milk is our birthright. If we can't have mother's milk we must have pure cow's milk, England is a drinking country. There the people drink liquor almost everywhere. But they too have learnt to substitute milk for wine. Here in the map of India (as hung up on the post) you have seen that 'milk' has taken the shape of a backbone. Really 'milk' is the backbone of a country. If the backbone is weak the constitution is weak. If the children of the soil cannot get milk to drink then how can we expect that their constitutions will be strong.

We are very thankful to His Excellency the Marquess of Linlithgow who is now the present Viceroy, for his encouraging attention to the improvement of the cattle.

I do not want to proceed further as my friend Mr. R. K. Choudhuri, a hero of thousand platforms, is waiting. He is the gentleman who will preside here to-day. I am sure, under him, the Conference will be successfully carried on. I am a lay man and I do not want to deal with the technical portion of this Conference and you will get much more pleasure in hearing on Veterinary subjects if they come from the mouths of specialists and Mr. Chatterjee has already spoken about the matter.

I am sorry to find that members of the Veterinary Staff are not well paid considering the amount of work that they have to do. I hope this matter will receive the kind consideration of the proper authorities and the members will get better salaries.

I am very happy to find that the Veterinary Department of India has been able to introduce a new system of treatment for Rinderpest. This new system of treatment has been able to help the Government to save many thousands of rupees. The new system is the system of treatment by "Goat Virus". I do sincerely hope and pray that the savings may be utilised for the betterment and advancement of the hardworking officers and also for the improvement of our cattle. I was much amused to find in the dictionary that the 'Veterinary' means 'beasts of burden'. Even 'beasts of burden' require good pastures to carry on their work and cannot our own dear Veterinary Officers ask for better prospects? For indeed we are grateful to them. I wish the Conference every success.

Now, gentlemen, with these humble words I declare the Conference open.

APPENDIX III.

General Secretary's Report.

A Brief report of the working of the Veterinary Graduates' Association, Assam.

Mr. President and the members of the Veterinary Graduates' Association, Assam.

Before I start with the report I beg leave of you for a while to unveil a dark page in the history of our nation: Our beloved King-Emperor George the Fifth has been snatched away by the hand of Destiny soon after the ceremonial functions of Silver Jubilee of His Majesty's reign celebrated throughout the length and breadth of India. As a mark of homage to the departed soul may I appeal to the house to stand up for a minute praying to the Almighty Father to grant eternal peace and rest to the great soul that has passed away.

This Association with much pleasure and delight took the opportunity of conveying its heartiest congratulation to our beloved Prince of Wales who ascended the throne as Edward VIII King Emperor of India

and assured His Majesty of their best wishes and loyal regards, but man proposes and God disposes and His Majesty's reign which began with such high hopes and promise unexpectedly came to an end. It is a very painful news that our beloved King-Emperor Edward VIII formally abdicated the throne on the 10th day of December 1936. This nature of sacrifice made by him is unparalleled in the history of the world and it will be enshrined in the hearts of the people in golden letters. He has been succeeded by the Duke of York on the throne as George VI, King Emperor of India and to him again this Association conveys the same heartiest congratulations, best wishes and the most loyal regards as they did to his beloved brother. May his Majesty live long and reign over us in peace and prosperity.

It is a matter of great pleasure and gratification for the members of our profession in our Province, that Dr. P. C. Nag, G. B. V. C. is undergoing higher studies in the Munich University, Germany, and has thus paved the way for others to follow.

It is with a heavy heart and feelings of regret that I have got to make reference to the premature death of our beloved colleagues Messrs. S. C. Das Gupta, R. M. Barua, J. C. Das Gupta and G. C. Deb. The great loss we have sustained by their passing away has left a void in the rank of our profession which can hardly be filled up.

Two more points and I shall turn to matters concerning more directly the affairs of our Association. We have great pleasure in congratulating one of our colleagues Mr. Srish Chandra Chose whom the benign Government has honoured with the distinction of Rai Saheb in recognition of his brilliant services in the cause of the Veterinary advancement in the province, which recognition is the first of its kind in the department. One of our colleagues Mr. G. P. Sen has very recently retired after serving the Government faithfully and conscientiously. He entered the department as a Veterinary Assistant and with usual tact and energy rose to the position of an officiating Superintendent, Civil Veterinary Department, Assam. He has, thus, paved the way for others to be elevated to the same dignity.

You are all aware of the facts that your beloved Association commenced its career from the 25th December, 1925, and has now stepped into its 11th year, so to say, I rise to make a statement of the working of the Association and I hope to be excused for shortcomings on my part in this respect. I offer my cordial thanks to the members of the Association for the honour they have done me by electing me the General Secretary of their Association. I know full well there are persons much more worthy than my humble self to hold a responsible office like this which you have conferred upon me, yet I felt called upon to accept it from a sense of obligation and at the call of duty. I was confident that your valuable suggestion and advice would enable me to steer through many difficulties, financial and otherwise which stand in the way of conducting the affairs of the Association to a successful issue. I am to note here with regret that all my high hopes have been shattered owing to the lack of response, on the part of the members of the Association as a result of which the work of the Association has

come to a moribund condition. I appeal to the members with all the emphasis at my command to see that this Association is given a new lease of life through their renewed enthusiasm and hearty support.

From the minutes of the proceedings of the first Annual Conference of this Association you will be pleased to find how I loved the Association with all the warmth of my heart, what strenuous effort I had to make in co-operation with Rai Shaheb Srish Chandra Ghose in giving it a first start in the Province. You can easily gauge the feeling of those who took the initiative in the organisation with the full support and co-operation of all the members but who have to view it now with eyes full of sorrow because of its present condition, which is far from satisfactory. I may observe here in passing that some of our colleagues of the Brahmaputra Valley are striving to place themselves at the helm of affairs and straining every nerve to infuse new life into the dry bones of the Association. I wish them all success in their endeavours.

Gentlemen, I hope and sincerely believe that you will all join with me when I say that in conducting the affairs of the Association to a fruitful issue the important factors are whole-hearted combination and co-operation among us for the common weal and for the requisite financial assistance which, I am sorry to say, are entirely lacking. The reasons for general apathy towards the Association are best known to the members themselves. I believe that the members are under the impression that the Department is not keenly alive to the best interests of the profession and that it is no good joining hands with the Association which could not extract better results out of it. But I can assure you that with the growth of fellow-feelings and co-operation amongst the members of the profession the Association is sure to thrive and make progress in all directions. And this is only possible by the attainment of financial stability. While you complain of inadequate emoluments and prospects, your beloved Association is standing on the verge of collapse for want of funds without which no useful work can be attempted. May I, therefore, propose that in order to create a Reserve fund the existing rules be so modified as to make it binding on every member to make a voluntary contribution of Rs. 50/- payable in the course of 2 years by different instalments and by an imposition of an Annual subscription of Rs. 2/- for conducting the affairs of the Association. This would be the surer basis of bringing the Association to a better financial stability. Lastly with a view to placing it on a surer and sounder footing the Association ought to be linked up with the All-India Veterinary Association.

Lastly, I wish to draw your kind attention to another matter of vital importance for your serious consideration. I presume, you will quite agree with me that the Officers of the Veterinary Department as the custodians of the health of cattle which form the chief wealth of India not only help to add to the resources of the country but also contribute to build Indians into a nation of health and prosperity. Agricultural development in a country consisting of 80% agriculturists is of paramount importance for its prosperity. Although this had been acknowledged even by His Majesty the King-Emperor by the appointment of Royal Commission on Agriculture in India long ago, still the

recommendations of the said Commission have not as yet been acted upon. Since the assumption of the exalted office of Viceroyalty to this vast country by His Excellency Lord Linlithgow, rural development and livestock improvement have been receiving His Excellency's best attention. May it be the prime business of the coming office-bearers of the Veterinary Graduates' Association to move His Majesty's Government that the country cannot receive the full benefit of the scheme for the improvement of her livestock until and unless the sphere of activities of the Veterinary Department is enlarged so as to ensure a more thorough and extensive study of the livestock diseases and their remedies. The result aimed at by the activities of the Agricultural Department principally dependent on the co-operation of the Veterinary Department, cannot be achieved without the expansion of the aforesaid Veterinary Department as embodied in the report of the Royal Commission on Agriculture in India, and every agriculturist, nay, every Indian, is eagerly looking forward for the day when it comes about.

It is with a heavy heart I am to note here that we are going to miss very shortly from our midst Sir Michael Keane C. I. E., K. C. S. I., I. C. S. who since his assumption of office as Governor of the Province, has been taking so active an interest in the welfare of the Province in every sphere and in that of the Veterinary Department in particular. We are, however, very glad and fortunate to welcome our Governor designate Sir Robert Neil Reid C. S. I., K. C. I. E., I. C. S. who as an Executive Councillor to the Government of Bengal has done a good deal for the uplift of the Agriculturists and I fervently hope that our Association will be able to convince His Excellency when he takes up office, of the immediate necessity of the expansion of the Veterinary Department in Assam for the benefit of the Agriculturists whose main stay is cattle.

Now I should like to call your attention to the various activities of this Association during the period under review :—

At the third Annual Conference of the Association held at Silchar on the 26th December 1927, an Executive Committee of 11 members was formed with Mr. S. Ghose as President, Mr. B. C. Chatterjee as Vice President, the writer of the report as General Secretary and Mr. N. N. Datta, Assistant Secretary and Treasurer and Messrs. H. C. Sen, B. Quader, A. R. Choudhury, S. N. Das and G. C. Deb as members.

When I took up the office of the General Secretary of the Association we had only 46 members on the roll. We have one enrolment since then against a few casualties which brought down the numerical strength to 44.

Only three meetings of the Executive Committee were held in the course of these long 7 or 8 years. The first meeting was held on the 26th February 1928, the second on the 29th September and the last on the 16th December 1928. The following items were discussed :—

- i. The terms of the resolution No. 9 dated 26. 12. 1927 as adopted not being in conformity with facts were kept in abeyance till the next

general meeting and further a cordial sympathy was conveyed to Mr. R. M. Borua who was then suffering from ill-health.

ii. A resolution requesting the General Secretary to draft a memorial to His Excellency the Governor in Council, Assam, regarding the pay and prospects of the Veterinary Assistant Surgeons and the Veterinary Inspectors and to submit the same to the Executive Committee for transmission to proper quarters through the Superintendent, Civil Veterinary Department, Assam.

iii. A resolution requesting the General Secretary to draft a Memorandum to be submitted to the Hon'ble Minister in charge of Education with proposed deputation of Veterinary Graduates' Association, Assam, regarding the pay and prospects of Veterinary Assistant Surgeons and Veterinary Inspectors in Assam.

iv. A resolution in connection with the letter dated 21-2-28, from the General Secretary to the Hon'ble Minister for Education through the Superintendent, Civil Veterinary Department, Assam, for deferring the date of deputation for acceptance.

v. A resolution requesting the in-corporation of Professional papers at the third Annual Conference to be held back in view of small resources at the disposal of the Association and only the names of the writers with their subjects be sent to the press for insertion in the Printed Proceedings.

vi. A resolution requesting Messrs. S. Ghose and N. N. Dutta, the President and the Asst. Secretary of the Graduates' Association, Assam, respectively to be present in the next meeting when their letter of resignation was to be disposed of.

vii. A resolution sanctioning the T. A. Bills of the Deputationists who went to Shillong to wait upon the Hon'ble Minister in charge of Education on 6-8-1928.

viii. A resolution sanctioning the bill of the Manager, Cachar Press, for printing the minutes of the third Annual Conference and authorising the General Secretary for payment of the same.

ix. A resolution sanctioning the T. A. bill of Mr. P. C. Datta, Veterinary Asst. Surgeon, Hailakandi for attending the deputation which was to wait upon the Hon'ble Minister for Education at Silchar on 26-2-1928.

x. A resolution vesting the General Secretary with powers to charge actual T. A. for journey to Silchar in connection with the matters of Association.

xi. A resolution passing the account of the Association which was presented before the Committee by the General Secretary.

xii. A resolution requesting the Committee for appealing to the members to clear up their arrears.

xiii. A resolution authorising the General Secretary to submit a printed Memorandum on behalf of the Association to the Statutory Commission as drafted by the General Secretary at his earliest opportunity and to make payment of the printing charges of the said Memorandum to the Press concerned.

xiv. A resolution requesting the General Secretary to put up the letters of resignation of Messrs. S. Ghose and N. N. Dutta, the President and the Assistant Secretary respectively at the general meeting for consideration and in the meantime to request Messrs. Ghose and Dutta to withdraw their letters of resignation in the interest of the Association.

xv. A resolution appointing Mr. N. N. Sen to audit the accounts of the Association.

xvi. Messrs. A. R. Chaudhury and S. N. Das having signified their unwillingness to hold the next Annual Conference at Maulvibazar as previously arranged a resolution was adopted authorising the General Secretary to select a new place for the same.

Save and except the audit of accounts all other resolutions were passed unanimously and action taken.

It would appear from the resolution No. 4 of the 3rd Annual Conference that the deputation which was to wait upon the Hon'ble Minister for Education was deferred till the return of W. Harris Esqr. from Home and Mr. Ghose was requested to wait upon him on his return from leave which he did on 13—2—28. The interview lasted for 3 hours during which all questions were discussed at length. The Superintendent gave a patient hearing and promised sympathetic consideration of our grievances.

A second deputation waited on the Hon'ble Minister for Education with Mr. S. Ghose as spokesman accompanied by Messrs. S. M. Sen Gupta and B. Quader on 6-8-28, who pressed all matters embodied in the Memorandum. The interview lasted for over an hour and a half in course of which the Hon'ble Minister was pleased to hold out hopes of redress.

A memorandum was submitted on 30-12-28, by the Secretary of the Veterinary Graduates' Association, Assam, to the Indian Statutory Commission during their visit to Shillong for providing safeguards relating to the interests of the employees under the Department which might be affected by the inauguration of the coming Reforms.

A memorial was submitted to His Excellency the Governor of Assam by the General Secretary on 8-5-28, urging the necessity of improving the pay and prospects of the members of the profession.

As a result of various agitation on the part of our Association the benign Government of Assam, was pleased to change the official designation of Veterinary Assistants to Veterinary Assistant Surgeons as in other provinces and also granted a partial relief by the revision of scale of pay which is yet quite inadequate compared with the pay and prospects of other technical departments in the Province.

It will appear from the resolution of Executive Committee that the President (Mr. S. Ghose) and the Asst. Secretary (Mr. N. N. Dutta) tendered their resignation for reasons unknown, by which the Association has sustained a great blow. The Association owes a deep debt of gratitude to Mr. S. Ghose for bringing into existence the Association which has proved so useful to you and removing through his strenuous exertions, all the obstacles lying in the way.

Our thanks are also due to Mr. N. N. Dutta, the Asst. Secretary, who ungrudgingly placed his services at the disposal of the President whenever an occasion arose.

The Executive Committee decided to place letters of resignation tendered by Messrs. Ghose and Dutta before the general meeting and in the meantime requested the said gentlemen to withdraw the same if possible. Mr. N. N. Dutta was pleased to comply with the request while Mr. Ghose was adamant.

Now gentlemen, you can easily imagine the difficulties your Secretary had to face. Notwithstanding all these troubles, the Association has made immense strides in the path of progress and uplift so far as the interests of the members are concerned. Had it received active and financial support as expected better results might have been achieved.

Gentlemen, you are all aware that the office-bearers of this Association are stationed at different centres and they have not had the opportunities of meeting together occasionally to have free discussion on matters relating to the affairs of the Association. That is the reason why the Secretary was to select a locality where the largest number of office-bearers was available with the least inconvenience. Silchar was selected, therefore, as the proper place for convening the meeting of the Executive Body. Moreover Silchar happened to be the Head Quarters of your President, Vice-President, Asst. Secretary and Treasurer as well as of some of the members of the Executive Body. In the circumstances most of the office records as well as Remington Typewriter were kept there for the smooth working of the Association. But as misfortune never comes single, the general apathy of the members coupled with flood havoc of 1929, at Cachar had stranded the Association in a quandary. Many of the records became illegible and some were lost while the Remington Machine was greatly damaged and put out of order. It is very unfortunate that I have had to submit statements unsupported by records at my disposal. The letter of the Asst. Secretary and Treasurer of your Association (Mr. N. N. Dutta) giving a vivid description of the flood havoc of 1929, will speak for itself.

A brief account of the Veterinary Graduates' Association is tabulated below :—

RECEIPT.	AMOUNT.	EXPENDITURE.	AMOUNT.
By the balance sheet for the session 1927 received from the General Secretary Mr. H. C. Sen		Postal stamps and telegrams ...	Rs. 64-8-6
(By Mr. N. N. Dutta Rs. 47-3-3		T. A. for deputation by P. C. Datta	Rs. 112-12-0
Postal S. Bank deposit „ 92-5-0		Rs. 73-12-0 by N.N. Dutta Rs. 39. ...	
Interest on - do. - 0-14-9		Printing charges for the proceedings of the 3rd Annual Conference and the Memorandum of the V. G. A., Assam to the Statutory Commission, etc. ...	Rs. 84-8-0
Subscription from members :—		Stationery „	6-14-0
By General Secretary Rs. 143-0-0		Miscellaneous „	13-15-6
By Asst. Secretary. „ 39-0-0		Expenditure shown by Mr. H. C. Sen as per voucher when he handed over charge to Mr. N. N. Dutta ...	Rs. 47-3-3
Refund received from Mr. S. Ghose, spokesman of the deputation which waited on the Hon'ble Minister for Education at Shillong. Rs. 12-12-0			Rs. 333-12-3
		In the Postal Savings Bank Account Rs.	3-3-9
		With the General Secretary	1-2-0
			Rs. 335-3-0
			Rs. 335-3-0

Rai Saheb Bharat Chandra Choudhury, Bidyabaridhi B. A., A.E.S., Assam, very kindly presided over the 3rd Annual Conference of Veterinary Graduates' Association held at Silchar on the 26th December 1927, and the Conference was opened by J. Hazlett Esq., C. I. E., I. C. S., Commissioner, Surma Valley and Hill Districts with an illuminating speech touching particularly upon the importance of the work done by the officers of the Civil Veterinary Department, Assam, and it was attended by all sections of the public,—officials and non-officials. The following interesting papers were read on that occasion which were highly appreciated by all.

1. The administration of Dilute Hydrochloric Acid and its efficacy in perforate palate, by Mr. P. C. Dutta G. B. V. C.

2. The value of Camphor in Hæmorrhagic Septicæmia and Anthrax, by Mr. N. N. Dutta, G. B. V. C.

3. Clinical cases :—Distokia, by Mr. L. R. Das, G. B. V. C.

4. Clinical cases :—A notable cure of a calf with extensive sloughing of the skin in the Abdomen, by Mr. L. R. Das G. B. V. C.

5. Clinical cases :—A case of Ascitis in dog, by Mr. F. C. Bhuyan G. B. V. C.

6. Clinical cases :—A case of Traumatic Meningitis in a Bullock, by Mr. L. M. Das Gupta, G. B. V. C.

7. Kumri as a sequel of Filaria Oculi, by Mr. D. F. Ahmed, G. B. V. C.

8. A case of Sclerestomum Tetracanthus with complications of Hepatitis, by Mr. D. F. Ahmed, G. B. V. C.

9. Intra Ocular Filariasis in Equines and some observations, by Mr. H. C. Sen, G. B. V. C.

Gentlemen, I have taxed your patience for long and before I resume my seat I offer my most cordial thanks to every one of you for the kind and patient hearing that you have extended to me.

P. C. DUTTA, G. B. V. C.,

General Secretary, V. G. A., ASSAM.

APPENDIX IV

PRESIDENTIAL ADDRESS

BY

MR. ROHINI KUMAR CHAUDHURI, B. L.

Gentlemen,

It is my proud privilege to-day to be able to assist you in resuming activities of your Association. Workers in every sphere of life have now realised the great value of combination not only for the betterment of their own position and prospects but also for securing greater efficiency in performance of the duties with which they are entrusted. This Annual Conference of yours is sitting to-day after nearly a decade. I hope year after year in future this will be able to give to the public progressive accounts of your achievements. I am glad to be in your midst on this important occasion and I most cordially thank you for the honour that you have bestowed on me by asking me to preside over this gathering to-day.

Gentlemen, you must be painfully conscious of the unenviable position in which your department is placed even now. There was a

time when it was looked upon as a mere luxury and the treatment of a vet, was considered far less efficacious than that of a village quack. It is a matter of great congratulation that by dint of your honest and devoted work you have been able to remove a good deal of the prejudice against you and villagers to-day search and look for you nearly as much as they do for treatment of human diseases. This is a good and promising sign but this is not enough. I wish you were not as handicapped in your work for want of funds as you are. If the Government of Assam could have spent on your department a little more than what they are doing now probably you could have shown to your credit much greater achievements in this province than elsewhere. Those who are interested in the public affairs and are working for the amelioration of the condition of the masses are convinced that they cannot succeed in their mission unless they with your assistance make the live-stock free from disease and save them from premature deaths. Really the improvement of the economic condition of our ryots is bound to be idle talks so long as we cannot take full advantage of your scientific aids in improving and preserving our cattle property. You are in a very delicate position to-day, you know that your assistance to the public has not been as effective as it should have been but you have no means to remove the difficulties in your way. On the other hand our village-folks have been also placed in sea. They are to-day looking more and more to your scientific aid because those of them who used to know medicine for treatments of animals are gradually disappearing. The situation is that in most cases they neither get the benefit of the modern nor of the old method of treatment. I believe Gentlemen, that it is time that the Government gave more serious attention to the matter. This department must be either made more useful or the show must be finished. The doctrine of either mend or end—resorted to by certain schools of political thoughts does not apply more strongly to any other department of Government activities than to yours.

The latest scientific treatment against Rinderpest, I mean the Goat Tissue Virus Vaccination is showing wonderful results. Every ryot has right to expect that the benefit of this treatment should be made available to their cattle everywhere. But for want of a suitable number of hands you cannot really give assistance in all quarters where they are needed. On many occasions the Veterinary Surgeons can only come to rescue when a good deal of havoc has been already done. But if only this treatment could have been more easily and generally available in every nook and corner, I believe the department could have not only more than justified their existence but also would have been a source of great blessing. It is well-known that the Veterinary Assistant Surgeons constitute the only working employees of the department, others are only inspecting officers. The strength of the Veterinary Assistant Surgeons in Assam is now 60 or so but the cattle population according to Linlithgow Commission's report is 5,786,000 excluding sheep and goats and other animals. This means that there are over a lakh of cattle for each Veterinary Assistant Surgeon to treat for disease and inoculate or vaccinate against epidemics. This certainly is an impossible piece of work and the inevitable result of the state

of things is that our poor ryots lose their cattle which constitute their main asset. Every one must admit that the Veterinary Assistant Surgeons are really over-worked in Assam. Madras Veterinary Department had 274 employees year before last. Statistics however show that they treated 1131 animals and inoculated by serum Goat virus 532 animals per head. But in Assam last year the average work done by each V. A. S. was 1975 animals treated and 1623 animals inoculated by serum and Goat virus methods. Besides, there were over 25,700 castrations performed. This shows that the average work here is more than double the average done by each Veterinary Assistant Surgeon in Madras. Yet the Veterinary Department here could not achieve any tangible result from public point of view; and if the present state of affair continues the Vety : Dept : will never achieve anything to their credit. The Linlithgow Commission rightly suggested that there should be one V. A. S for every 25,000 animals. If the Assam Government want anything out of the Veterinary service they must first of all increase the staff accordingly.

I think it is high time for the Government of Assam to formulate a 5 years or 10 years plan for the improvement of the department. In Bengal such a plan is in operation for which Rs. 50,000/- has been allotted from the contribution received from the Central Government for rural development. But the reply of the Government will be where is money? And that is an all baffling question. I may perhaps point out that Government spend much less on Goat virus than what they did on serum. Formerly serum worth about Rs. 20,000/- used to be purchased. Now only about Rs. 500/- is spent on Goat virus. The economy thus effected should have been more profitably used in increasing the strength of the service. Such a plan if can be adopted should in my opinion include the following amongst others.

(a) Increase of the strength of the Veterinary Assistant Surgeons to the proportion of 25,000 animals per head.

(b) Wholetime propaganda officers with full equipments for the purpose.

(c) Better equipment of the Veterinary Dispensaries and the Veterinary Hospitals. In Madras they have X'ray apparatus as well as arrangements for ultraviolet ray treatment. In Assam such a thing is yet a dream. But for accurate diagnosis and better and speedy treatment and control of the diseases, improvement of equipments is of urgent need.

(d) Control of diseases communicable to human being from the animals. For example the cause of Rabies in human being in cent per cent cases is due to bite or scratch from the Rabid animal. But there is no arrangement in the Department, to control it. Instances about Tuberculosis Anthrax, etc., may be cited.

(e) Milk and meat inspection. Milk and meat are carriers of diseases in many cases. But there is no departmental arrangement

to check it. The Veterinary Graduates by their qualification are better fitted for this work.

(f) Control of cattle movements from place to place. This is essentially necessary if spread of the diseases epidemic or otherwise is to be successfully checked.

Gentlemen, I am a lay man quite unfamiliar with your science. But I know this much that in you there is a great capacity of improving the hard lot of our agriculturists who are really the backbone of the country and who are feeding us. *With them we rise and fall.* You have driven them to a position in which they are helplessly looking forward to you for assistance. Their cattle is not so valuable as would enable them to pay for your rather expensive treatmentt. On the other hand if you do not enable them to utilise your valuable assistance, cattle can never be expected to improve in their value. The whole thing is moving in a circle. I do not know how the problem can be solved. Yours is the only department immune from top-heaviness. There is no room for retrenchment here as far as we can see. What is needed is rather more expenditure. If the principle of robbing Paul to pay Peter can be safely adopted anywhere I think it can be with reference to your department which should be improved even at the cost of some other department.

Gentlemen, I hope I have not been very pessimistic and I expect that nothing that I have said would curb your enthusiasm in any way. I trust you will carry on your noble work of research in the interest not only of your human brethren but also out of a deep sense of sympathy for our dumb and uncomplaining fellow creatures. The same Almighty Father who has created us all shall surely give us our due share of pleasure and happiness in this world. And let this thought encourage and succour you in performance of your duties. Your honest exertions must surely draw the attention of the public to your hard lot. And I close this poor address of mine with an ardent hope that time is perhaps not very distant, when you will be able to get your due return for the work that you do in the cause of humanity and God's creation.

APPENDIX V.

The following gentlemen then addressed the gathering.

(a) Mr. K. C. Sarman in the course of his speech spoke about the poor condition of our cows resulting in falling easy prey to diseases with fatal results. He also spoke about the poor milk yield of our cows.

(b) Mr. P. Singh, Rtd E. A. C., in course of his speech said, that not a month passed when he had not to send an animal to the Gauhati Veterinary Hospital for treatment and congratulated the staff for the keen interest taken by them. The result of treatment, however, was not in all the cases successful, but he attached no blame to the officers

as the patients were dumb and could not express their sensation and ailments. The cattle owners were also responsible to some extent as they could not provide sufficient food and attention to their animals.

He expressed satisfaction at the report of the Chairman of the Reception Committee about the improvements in treatment of diseases by scientific methods. He then dilated on the development of Veterinary science—how it started with the Egyptians and later was developed by Romans, French and the English and said that thereafter the Civil Veterinary Department was started in India. He then said that the ratio of work and the staff as reported by the Chairman of the Reception Committee was deplorable. The work was enormous and the staff was very poor in strength.

He added that Assam was an agricultural country with cattle as main stay for cultivation and expressed the hope that the staff should be increased with better pay so as to enable them to look after the care of every patient.

(c) Dr. G. S. Das in the course of his speech congratulated the members of the Association and said amongst other things that about ten years back he had occasion to be at Palasbari with the Veterinary Assistant. They were engaged in epidemic works in their respective spheres. Some other officers went there and they were made to make a move from the inspection Bungalow which was the only halting place there. He then said that they got no response from the villagers about their accommodation and had to stay at a far off place in a wretched house. That was the state of affairs then. Last year, he continued, he went to Chaigaon to attend to epidemic works and people often enquired of him about "Bhuyan Doctor" meaning Mr. F. C. Bhuyan, the local Veterinary Asst. Surgeon. That showed, he proceeded, that the Veterinary work made very good progress in gaining popularity. But he was surprised to find no Veterinary Dispensary between Goalpara and Gauhati... a distance of about 90 miles. He requested the President to urge the Government to have a Veterinary Dispensary at Chaigaon.

(d) Rai Saheb S. Ghosh, Superintendent, Civil Veterinary Department, Assam, in the course of his speech spoke about the important activities of the Department and convinced the audience about the progress, the Civil Veterinary Department has made in the matter of cure of animal diseases and improvement of the Local cattle.

BOMBAY VETERINARY MEDICAL ASSOCIATION.

*Proceedings of the Annual General Meeting held on the
29th of December, 1936 :—*

The Annual General Meeting of the above Association was held at the Bombay Veterinary College on the 29th of December 1936, just after the Ninth All-India Veterinary Conference. There were nearly 40 members present.

The Annual Report of the Managing Committee submitted by the President was taken as read.

The Minutes of the last Annual General Meeting were read and signed.

Resolved that the following members be the office-bearers for the year 1937 :—

Khan Saheb N. D. Dhakmarvala	... <i>President.</i>
Mr. P. G. Date	} <i>Jt. Hony. Secretaries.</i>
„ J. G. Gokhale	
„ V. N. Kulkarni	... <i>Hony. Treasurer.</i>
„ C. N. Desai	} <i>Members of the Managing Committee.</i>
„ R. G. Sathe	
„ D. S. Laud	
„ H. B. Shirsathe and	
„ P. C. Bapat.	
„ M. K. Garudacharya	} <i>Hony. Auditors.</i>
„ A. G. Khair	

A gold medal was awarded to Mr. Y. N. Marathe, the retiring Hony. Treasurer of the Association, in appreciation of his long and valuable services to the Association by the President Khan Saheb Dhakmarvala.

A vote of thanks to the President and the retiring members of the Managing Committee terminated the proceedings.

BOMBAY VETERINARY MEDICAL ASSOCIATION.

Balance-Sheet and Accounts of the Bombay Veterinary Medical Association from 1st June 1935 to 31st May, 1936 :—

Receipts.		Expenditure.	
Opening Balance	Rs. 635-7-10	Travelling Expenses	Rs. 16-4-0
Life Member 1.	„ 25-0-0	Printing Receipt	
New members for 1935 (33)	„ 231-0-0	Books (5)	„ 5-0-0
Rejoined Members (4)	„ 8-0-0	Foolscap Stationery	„ 0-8-0
Arrears from 1 member for 1931	Rs. 3-0-0	Postage	„ 12-14-0
Arrears from 7 members for 1932	Rs. 14-0-0	Total	Rs. 34-10-9
Arrears for 1933 from 18 members	Rs. 36-0-0	Closing Balance	Rs. 1,173-14-1
Arrears for 1934 from 28 members	Rs. 56-0-0	Total	Rs. 1,208-8-10
Arrears for 1935 from 93 members	Rs. 186-0-0		
Interest	„ 14-0-1		
Total	Rs. 1,208-8-0		

Checked and found correct.

A. G. KHAIR,

M. K. Garudacharya.

2-8-1936.

Y. N. Marathe,

Hony. Treasurer.

1-6-1936.

BOMBAY PRESIDENCY SUBORDINATE CIVIL VETERINARY OFFICERS' SERVICE ASSOCIATION.

*Proceedings of the Second Conference held in the Bombay Veterinary
College, Parel, on 30th December, 1936.*

Members Present.

Messrs.

1. P. V. Nagarsheth.
2. H. B. Sirsathe.
3. C. N. Desai.
4. M. N. Ronghe.
5. T. R. Khaladkar.
6. S. S. Patkoare.
7. J. Z. Kalal.
8. D. B. Sapre.
9. V. K. Chatuphale.
10. K. B. Trievedi.
11. R. B. Phadnis.
12. M. K. Zavery.
13. G. S. Balekunderi.
14. N. G. Kulkarni.
15. N. I. Chopda.

Messrs.

16. M. K. Garudachar.
17. A. B. Agte.
18. Y. V. Limaye.
19. E. R. Kulkarni.
20. S. B. Hanchlikar.
21. P. C. Bapat.
22. V. B. Dinkar.
23. D. B. Sapre.
24. S. N. Nimbalkar.
25. A. C. Patel.
26. R. G. Pandya.
27. C. S. Desai.
28. R. R. Alur.
29. M. D. Vaishnav.
30. M. H. Bhat.

Besides the members mentioned above, Deputy Superintendent Mr. M. G. Kulkarni and the Deputy Director Mr. V. N. Kulkarni were also present.

V. R. Phadke Esquire. G.B.V.C., J. P., Principal, Bombay Veterinary College, was proposed to the chair in befitting terms by Mr. C. N. Desai and seconded by Mr. H. B. Sirshathe and he took the chair amid cheers.

Welcome Address was read by Mr. P. V. Nagarsheth, President of the Association.

Letters of sympathy expressing inability to attend but wishing success for the Conference were read.

Mr. M. N. Ronghe, Secretary of the Association read the report of the Association from the year 1931 to 1936 and it was unanimously adopted.

Mr. C. N. Desai, Treasurer of the Association read the Balance Sheet and Accounts of the Association from 1st April, 1931 to 1936, and it was unanimously adopted.

The following papers were read and discussed :—

- (1) "Cancer of horn" by Mr. S. M. Nimbalkar.
- (2) "Milk injection in skin diseases" by Mr. M. D. Vaishnav.

The following resolutions were put before the Conference. They were discussed and passed unanimously :—

(1) That this Conference requests that a new selection grade of Veterinary Assistant Surgeons on Rs. 125-10-175 be created and fixed at 10% of the cadre and be designated as District Veterinary Officers and they may be furnished with Magic-Lanterns and Slides on Veterinary Science as future promotion chances to Inspector's post (which are only three) are very remote for 125 Veterinary Assistant Surgeons.

Proposed by Mr. C. N. Desai, seconded by Mr. S. B. Hanchilikar and passed unanimously.

(2) That this Conference requests that some experienced Veterinary Assistant Surgeons be engaged on Village Uplift Work one in each Division.

Proposed by Mr. P. C. Bapat, seconded by Mr. R. B. Phadnis and passed unanimously.

(3) That this Conference requests that a Post-Graduate Course be opened at the Bombay Veterinary College to freshen the Professional knowledge and every man in the Department be kindly given a chance to undergo the course after 10 years of service just as is done in the Medical Department.

Proposed by Mr. R. B. Phadnis, seconded by Mr. P. C. Bapat and passed unanimously.

(4) That this Conference requests to reconsider the question of House Rent Allowance to Reserve Veterinary Assistant Surgeons as it will cause a real hardship to the poorly paid Subordinates.

Proposed by Mr. G. S. Balekundri, seconded by Mr. S. N. Nimbalkar and passed unanimously.

(5) That this Conference requests the Director of Veterinary Services, Bombay Presidency, Poona, to reconsider the question of the charges for private practice and to please allow Rs. 2/- within Municipal area and Rs. 5/- outside, per visit.

Proposed by Mr. M. K. Zavery, seconded by Mr. E. R. Kulkarni and passed unanimously.

(6) That this Conference requests the Director of Veterinary Services, Bombay Presidency, Poona, to fix a tenure of 5 years for each Dispensary and 3 years at bad climate places.

Proposed by Mr. A. B. Agte, seconded by Mr. V. K. Chatuphale and passed unanimously.

The President, Mr. V. R. Phadke delivered a short speech thanking the Conference for selecting him as President of the Conference.

The following office-bearers were elected for the next year :—

Mr. P. V. Nagarsheth. *President.*

Mr. H. B. Sirsathe. *Vice-President.*

Mr. M. N Ronghe.	}	<i>Secretaries.</i>
„ S. S. Patkar.		

Mr. C. N. Desai. *Treasurer.*

Mr. A. B. Agte.	}	<i>Members of the Managing Committee.</i>
„ M. K. Zavery.		
„ M. D. Vaishnav.		
„ E. R. Kulkarni,		
„ T. R. Khaladkar.		
„ G. S. Balkundri.		
„ K. H. Maniyar.	}	

A vote of thanks to the previous year's office-bearers was proposed by Mr. C. N. Desai and seconded by Mr. M. K. Zavery and was passed unanimously.

A vote of thanks to Khan Saheb Dhakmarwala, Chairman, and also to the members of the Reception Committee of the College Golden Jubilee Celebration Committee for making arrangements for the lodging and boarding of delegates was passed unanimously.

A vote of thanks to the Director of Veterinary Services, Bombay Presidency and also to the Principal, Bombay Veterinary College for allowing the use of the College Building for the Conference, was passed unanimously.

A vote of thanks to the President of the Conference, Prof. V. R. Phadke, G. B. V. C., J. P., was passed unanimously for conducting the business of the Conference successfully.

BOMBAY,

30th December, 1936.

V. R. PHADKE.

President.

WELCOME SPEECH

BY

*Mr. P. V. Nagarsheth, G. B. V. C., President, Bombay
Presidency Subordinate Civil Veterinary Officers' Service Association.*

President and Professional Brothers,

As President of the Bombay Subordinate Civil Veterinary Officers' Service Association, I esteem it a great privilege and honour to accord you, for the second time, a cordial welcome. I trust that with your help and guidance our discussions, deliberations and desires will prove fruitful in achieving the results which we aim at by holding such a Conference.

In the first place I have to express my sincere thanks to the Principal Prof. V. R. Phadke for kindly accepting our invitation to preside over this Conference. I need hardly say that we appreciate it very much since amongst his multifarious and responsible duties in connection with the Golden Jubilee of the Bombay Veterinary College and also of His Excellency the Governor of Bombay Lord Brabourne's visit to-day in the evening he has accepted our request and we congratulate ourselves for having him amongst us and his presence here to-day is a clear proof of his great sympathy towards this Conference. The first meeting of this Association was started as early as 1927, under his Presidentship and we are glad that he is now the Principal of the College which is an unique honour for a graduate of the College. We wish him all success and wish that he would get the chance of becoming the Director of Civil Veterinary Department, Bombay Presidency, before his retirement.

Secondly, I have to express my sincere thanks to E. S. Farbrother, Esqr., Director C.V.D., Bombay Presidency, for presiding at our last Conference at Poona in the year 1931. It is by his efforts that many of the resolutions passed at the last Conference are given effect to. The Conference recommended in its Resolution No. 5 to fill up vacancies of Lecturers and Veterinary Assistant Surgeons at the Bombay Veterinary College from C. V. D. Subordinates and Mr. Farbrother has already taken men from C. V. D. into the College and Glanders Department. We have to congratulate our Vice-President, Mr. M. G. Kulkarni for being appointed as Deputy Superintendent, Glanders and Farcy Department and also Mr. M. K. Garudachar member of our Managing Committee for being appointed as a Lecturer in the College. Besides, as resolved at the last Conference vaccinations against Rinderpest are carried out to a large extent everywhere in the Presidency as Virus is now prepared at the Bombay Veterinary College. We wish that as the grades of the Veterinary Assistant Surgeons are now revised to Rs. 125 that a Selection grade of Rs. 125-10-175 be created for 10 per cent of the staff who would have specialised professionally in some way as there are only three posts of Veterinary Inspectors and chances of promotion are very remote to 125 men for 3 posts of Inspectors. We also wish that a post-graduate class be opened at the Bombay Veterinary College to raise the professional standard of employees. The subjects of Cattle

Breeding and Poultry Diseases require to be introduced in the syllabus of the Bombay Veterinary College so that the Veterinary graduates can do much for the improvement of cattle and poultry.

The Association has on its roll 86 members. There are only 108 Veterinary Dispensaries in this Presidency with a population of one crore of Bovines. The present cadre of Veterinary Assistant Surgeons is totally inadequate to cope successfully with problems presented in research and executive professional work. We earnestly hope that each Taluka of nineteen Districts of our Presidency be provided with a dispensary at a very early date. We are sure that under the regime of our present sympathetic Viceroy Lord Linlithgow this will be carried out very soon.

In conclusion I have to say that I have touched on few points requiring attention of our Conference and I trust that with your hearty co-operation, our deliberations, discussions and decisions will benefit the profession and earn for it its due share and recognition.

I have to thank the Director of Veterinary Services and Principal of the College, Prof. Phadke for kindly allowing the College premises to be used for the Conference.

Balance sheet of the Bombay Subordinate Civil Veterinary Officers' Service Association from 1932 to 1935.

1932.

Receipts.			Expenditure.		
	Rs.	A. P.		Rs.	A. P.
Opening balance.	5	0 6	Postage stamps.	... 11	11 3
Loan from the Treasurer.	21	0 0	Printing charges of 150 copies of memorial sent to Government of Bombay.	... 20	0 0
Admission fees.	... 3	0 0	Money order commission for sending Rs. 20 to press	... 0	4 0
Fees from members,	... 42	0 0	Railway charges from Madras to Ahmedabad 150 copies of the memorial.	... 2	10 0
			Loan return to the Treasurer.	... 21	0 0
			To balance.	... 15	7 3
Total ...	71	0 6	Total ...	71	0 6

1933, 1934 and 1935.

RECEIPTS.				EXPENDITURE.			
	Rs. A. P.				Rs. A. P.		
Balance	...	15	7 3	Interest on Rs. 100 that are in the bank for 1931 and 1932, not withdrawn but deposited in the bank.	...	4	8 0
Fees for 1932.	...	2	0 0				
„ 1933.	...	9	0 0				
Interest on Rs. 100 in the bank for the year 1931 and 1932.	...	4	8 0	Fees of 9 members for 1933 returned as it was decided by the managing committee held at Surat on 27-10-33, not to receive fees for 1933.	...	9	0 0
				Postage stamps by Mr. C. N. Desai.	...	1	14 6
				To balance	...	15	8 9
Total ...				Total ...			
30 15 3				30 15 3			
Bombay, 30th December, 1936. }				C. N. DESAI, <i>Hon. Treasurer.</i>			
M. K. JHAVERY, <i>Auditor.</i>							

**ALL-INDIA VETERINARY ASSOCIATION,
MADRAS BRANCH.**

Proceedings of the General Body Meeting held on 7-3-1937.

A General Body Meeting was held on 7-3-1937, at the Serum Institute, Madras, under the presidency of Rao Sahib K. Kylasam Ayyar, the President, to consider the letter of the President of the All-India Veterinary Association, requesting to give opinion on the resolution passed at the last All-India Veterinary Conference, Bombay. Twenty eight members were present.

The following resolution was moved by Mr. R. Narasinga Rao and seconded by Mr. P. Srinivasa Rao :—

“While welcoming the the proposal of the authorities to impart the highest Veterinary Education to the Indian youth in this country, this General Body Meeting of the A.I.V.A., Madras Branch, held on 7-3-1937, is emphatically of the opinion that the proposed new Central College at Izatnagar is unnecessary and involves needless enormous expenditure—both recurring and nonrecurring and therefore resolves to urge

respectfully the Government of India through the A.I.V.A., to drop the proposals and to advise the Provincial Governments having Veterinary Colleges of their own, to develop them so as to impart the highest Veterinary Education to suit the needs of the country at a minimum cost and with the maximum benefit".

Carried unanimously.

In support of the resolution, the following gentlemen gave their opinion :—

Mr. M.R.V. Panikar was not in favour of a Central College. He said that the existing Veterinary Colleges in the Provinces should be encouraged and assisted to develop into high grade institutions, and two courses may be necessary—one of three years and the other five years course. The Madras Veterinary College is one such which could be easily converted into a first rate one. Further, the newly instituted degree course at this college would be adversely affected by the proposed Central College.

Mr. K. S. Nair said that the sponsors of the scheme of the Central College are thinking of getting for the proposed College Professors and Examiners from abroad, but in the interest of the country the existing colleges should be helped to develop into first class institutions. The college at Madras is capable of giving the highest possible training if only the necessary facilities are afforded. It is only lately that Veterinary Education was put on a somewhat better footing. Our equipment and facilities for teaching are equal to any that may be brought into being for imparting the highest Veterinary Education. The proposed Central College would be a waste and the proposal for its establishment should be resisted by this Association.

Mr. V. Janikiram Ayyar was of the opinion that the scheme to import Professors would not answer the purpose for they will have to get experience first, themselves.

Mr. R. Narasinga Rao was of the opinion that there is absolutely no need for the proposed Central College. The Madras College is best fitted to give the highest possible Veterinary Education.

Mr. P. Srinivasa Rao said that in the United Kingdom there are four or five colleges and there is no reason why there should be only one higher grade college in this country. The cattle population is so large in this country that many more highly trained men are required than a single college could ever turn out.

In the Medical Department highest training is available in all provinces in this country and there is no reason why it should be otherwise in this profession. There is no need for affiliation of these colleges to the R. C. V. S., for the highest training is possible without it as is seen from the example of Canada, Australia, Africa, etc. The provincial colleges should be so developed as to give the highest possible training.

Mr. M. Ramakrishna Pillai was in favour of highest Veterinary training being given in the existing Veterinary Colleges.

Mr. M. Sunderanathan was entirely in favour of the proposed resolution and would commend it.

It was unanimously resolved to hold the Provincial Veterinary Conference during Michaelmas holidays.

With a vote of thanks to the Chair, the meeting terminated.

Madras. }
7-3-1937 }

K. KYLASAMIER,
President.

Notices.

THE ALL-INDIA VETERINARY ASSOCIATION.

Office :—Crawford Market, Hornby Road, Bombay.

15th March, 1937.

According to the rule No. 27 (b) of the revised Rules of the Association adopted in the last All-India Veterinary Conference in Bombay, each of the Provincial Associations, has to elect a member to represent it on the *Council of the All-India Veterinary Association*. Bombay has got to elect two members, as the head-quarters province. It is, therefore, requested that Provincial (British Indian and Indian States) Associations will kindly elect representatives and intimate their names and addresses to me as early as possible.

Bombay. }
15-3-1937 }

D. S. LAUD, G.B.V.C., F.Z.S., F.R.H.S.,
General Secretary.

Change of Address.

All communications intended for me may kindly be addressed to P. O. Kurnool, (Madras Presidency), as I have come down here on transfer from Nandyal.

25TH MARCH, 1937, }
P. O. KURNOOL, }
Madras Presidency. }

M. S. SASTRY, G. B. V. C.,
Treasurer,
The All-India Veterinary Association.

**BIHAR VETERINARY COLLEGE,
P A T N A.***Notice*

The next session of the Bihar Veterinary College will commence from the 1st July, 1937.

1. A candidate desiring admission should submit his application on the prescribed form, together with the following certificates in original, so as to reach the Principal on or before the 1st June, 1937.

(a) Age and moral character certificate from the Headmaster of the School or Principal of the College at which he last read.

(b) University certificate or a certificate from the School or University authorities to show that he has passed the Matriculation Examination.

(c) Medical Certificate of fitness from an Assistant Surgeon.

(d) Letter from his guardian stating that all expenses incurred by his ward during the latter's period of study at the College will be paid.

(e) Letter of identification from some well-known person stating that the candidate is known to him and the statements made in the application form are correct.

2. A candidate for a District Board stipend to assist him while under training at the College should apply *in the first instance* to the Chairman of his home District Board, with the necessary certificates as soon as possible so that when selected he may be interviewed and approved by the Director of Veterinary Services, Bihar, before he is recommended for admission. Such a candidate should in addition to the certificates required in para 1, produce at the time of admission a letter from the Director of Veterinary Services, Bihar, or the Chairman District Board concerned regarding his selection as a stipendiary.

3. An applicant must be a Matriculate of a recognised University. Preference will be given to a candidate who has passed the I. A. or I. Sc. Examination. A good knowledge of English is

essential. Height should not be under 5'—4" and chest unexpanded, not less than 30 inches. A candidate must not be below 16 and over 25 years of age.

4. A non-stipendiary candidate will have to appear before the Governing Body of the College when called for interview.

5. Fees must be paid in advance according to the scale under rule 8 of the College rules, the initial payment due at the time of admission being Rs. 35/8/- only.

6. A candidate will reside in the College Hostel from the date of his admission unless specially exempted.

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Principal,
Bihar Veterinary College.

College News.**DIPLOMA EXAMINATION RESULTS.****Bengal Veterinary College, Calcutta.**

The undermentioned students have passed, in order of merit, the Diploma Examination held in March, 1937.

<i>Serial Number.</i>	<i>Name.</i>	<i>Serial Number.</i>	<i>Name.</i>
1.	Monoranjana Sarkar.	22.	Maung Saw Tun.
2.	Profulla Chandra Basu.	23.	Khondker Matiur Rahman.
3.	Satyendra Nath Banerjee.	24.	Chembanda D. Kalapa.
4.	Khurshid Ahmed Quraishi.	25.	Hitendra Nath Chowdhury,
5.	Yar Mohammad.		
6.	Saroj Kumar Das.	26.	Sarat Chandra Maity.
7.	A. Vincent De Croos.	27.	Zahir-Ul-Hassan.
8.	Naggehalli Venkatachar Doraswamy.	28.	Kamaluddin Md. Yusuff Khan.
9.	L. Venkita Jalam.	29.	Adi Nath Mitra.
10.	Laksman Puri.	30.	Mohammad Takiuddin Ahmed.
11.	Rashad Sulaiman Kattan.	31.	Ruhal Ameen.
12.	Joseph John Palepu.	32.	Vartanzareh Noradungian.
13.	Mavatur Venkatagiri Gundu Rao.	33.	Tiruvengad Rama Iyer Ramchandra Iyer.
14.	Shafi Bahadur Khan.	34.	Susil Ranjan Das.
15.	A. T. Thiaga Rajah.	35.	Debi Prosad Bhatt.
16.	Chowdhuri Mahmood Hasan.	36.	Maung Ba Gywe.
17.	Vaman Balwant Soman.	37.	Lutfi Tahir Bi-Bayati.
18.	Lakshmana Rao Eheema Rao Pedaki.	38.	Supper Kandiah.
19.	Maung Tun Aung Gyaw.	39.	Yeakub Ali.
20.	Rash Behari Gupta.	40.	Bibhuti Bhushan Paul.
21.	Hector Charles Perera.	41.	Amiya Lal Banerjee.

Belgachia, Calcutta,

5th April, 1937.

}

A. D. MacGREGOR,

F.R.C.V.S., F.Z.S., I.V.S.,

Principal, Bengal Veterinary College.

BIHAR VETERINARY COLLEGE, PATNA.

The following students are declared to have passed the Diploma Examination, held in March and April 1937 :—

- | | |
|----------------------|-------------------|
| 1. M. P. Johari. | 7. M. Niwas. |
| 2. M. S. Khan. | 8. Munir Khan. |
| 3. Y. R. Sinha. | 9. Daulat Singh. |
| 4. R. N. Verma. | 10. R. D. Singh. |
| 5. G. N. Srivastava. | 11. D. P. Yadava. |
| 6. T. P. Banerjee. | 12. H. K. Gupta. |

Patna, }
5th April, 1937, }

R. T. DAVIS, I.V.S.,
Principal, Bihar Veterinary College.

BOMBAY VETERINARY COLLEGE.

The undermentioned candidates have passed in order of merit the Diploma Examination of the Bombay Veterinary College, for the Session 1936-37.

- | | |
|---------------------|---------------------|
| 1. Soong Min Thau. | 9. Manjrekar, S. L. |
| 2. Marathe M. R. | 10. Ghalagi, S. B. |
| 3. Ganesh Prakash. | 11. Patankar, L. R. |
| 4. Joshi, W. H. | 12. Lutfulla, Y. |
| 5. Vaniasingham, J. | 13. Chitrav, D. K. |
| 6. Parnaik, D. T. | 14. Bishley, P. D. |
| 7. Pillai, T. X. | 15. Joshi, G. G. |
| 8. Kripalu, M. G. | |

Parel, Bombay, }
15th, April, 1937. }

V. R. PHADKE, G.B.V.C., J.P.,
Principal, Bombay Veterinary College.

MADRAS VETERINARY COLLEGE.

List showing the names of Students who graduated from the Madras Veterinary College in March 1937.

- | | |
|---------------------------|------------------------------|
| I. K. Vaidyanathan. | VIII. { M. S. R. Anjaneyalu. |
| II. Maung Kyaw Zan Aung. | { Saw E. Maung. |
| III. John R. Rodgers. | IX. Maung Kyaw Thein. |
| IV. P. Balakrishna Menon. | X. S. Sankaran. |
| V. { Maung Thaw. | XI. V. Subramaniam. |
| { R. Vijiarangam. | |
| VI. Maung Po Tha Shinn. | XII. { A. Mangalanathan. |
| VII. Benjamin Abishegam. | { Muhammad Abdul Haleem. |

Madras. }
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